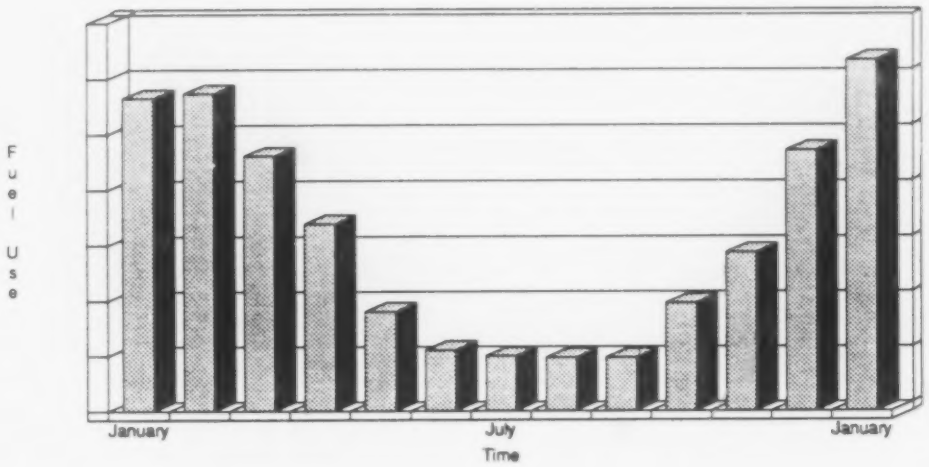
S6255-1-U

# Ohio Short Term Forecast

## of

## Utility Fuels

## 1988 - 1989




**Forecasting and Siting Division**
**Utilities Department**

State of Ohio
Richard F. Celeste
Governor

Public Utilities Commission
Thomas V. Chema
Chairman

# Ohio Short Term Forecast of Utility Fuels 1988 - 1989


**EDITOR**

Galip Feyzioglu, PhD

**PROJECT MANAGEMENT & FORECASTS**

Francis C. Rack, MPA ..... Natural Gas

David L. Wang, MSISE ..... Electricity

**DATA ANALYSIS & SYSTEMS SUPPORT**

Brian L. Ko

Mi S. Lim

Ahad Osman-Gani

**DATA SUPPORT**

Thomas Baird, PhD

Brenda Nelson

Jeanne Snider

John Borrows, PE ..... Department Director

James Lehr Kennedy ..... Division Administrator

**Forecasting and Siting Division**
**Utilities Department**

State of Ohio
Richard F. Celeste
Governor

Public Utilities Commission
Thomas V. Chema
Chairman

# EXECUTIVE SUMMARY

Based on one year forecasts submitted by each of the major electric and natural gas utility companies serving Ohio, and based on independent projections of the Division of Forecasting and Siting of the Public Utilities Commission of Ohio, the supplies of fuels for generating electricity and supplies of natural gas for heating and manufacturing are forecasted to be adequate through October 1989. The forecast takes into account the possibility of a 10 percent colder than normal winter.

Supplies of coal, used to generate more than 92 percent of the electricity in Ohio, are not expected to fall below a safe margin for any generating utility company through October 1989.

Supplies of the eight major natural gas distribution companies serving the state are expected to be adequate through October 1989.

As in past years, roughly 50 percent of the coal supplied to Ohio electric utilities is from out of state sources. Approximately 91 percent of Ohio's natural gas supply will continue to come from out of state sources.

# OHIO SHORT TERM FORECAST OF UTILITY FUELS 1988-1989

## TABLE OF CONTENTS


**Executive Summary** ..... i

**List of Tables** ..... iv

**List of Figures** ..... vi

1. **Introduction** ..... 1

   1.1. Objectives ..... 1
   1.2. Requirements and Scope of This Report ..... 1
   1.3. Division of Forecasting and Siting Forecasts ..... 2
   1.4. Overview of This Report ..... 3
   1.5. Energy Consumption and Temperature ..... 3

2. **Electricity** ..... 5

   2.1. Supply and Generation ..... 6
      2.1.1. Source/Supplier of Fuel for Electric Generation ..... 6
      2.1.2. Electric Generation by Type of Fuel ..... 6
   2.2. Historical Behavior of Sectoral Requirements ..... 7
   2.3. Twelve Month Electricity Demand Forecasts ..... 8
   2.4. Assessment of Utility Fuel Adequacy ..... 8
      2.4.1. Coal ..... 9
      2.4.2. Oil ..... 9

3. **Natural Gas** ..... 31

   3.1. Supplies and Distribution ..... 31
      3.1.1. Sources of Supply ..... 31
      3.1.2. Distribution ..... 32
   3.2. Historical Behavior of Interstate Gas Supplies and Sectoral End-Use Requirements ..... 33
      3.2.1. Interstate Natural Gas Supplies ..... 34
      3.2.2. Annual Sectoral End-Use Requirements ..... 35
      3.2.3. Monthly Sectoral End-Use Requirements ..... 35
   3.3 Utility Forecasts: Consolidated Results and Twelve Month Outlook ..... 35
      3.3.1. Consolidated Results ..... 35
      3.3.2. Twelve Month Outlook ..... 36
   3.4. Division of Forecasting and Siting Independent Forecast ..... 37
      3.4.1. Methodology ..... 37
      3.4.2. Special Assumptions ..... 37
      3.4.3. Results ..... 38
      3.4.4. Long-Term Outlook ..... 38
      3.4.5. Emergency Response Capability ..... 40

4. **Appendices**

   Appendix A: Electricity Forecasts ..... 63
   Appendix B: Natural Gas Forecasts ..... 85

# LIST OF TABLES


1. Population-Weighted Heating Degree-Day Summary for Ohio ..... 10
2. Source of Coal Supply to Electric Utilities (Ohio Portion) ..... 12
3. Major Oil Suppliers to Electric Utilities (Ohio Portion) ..... 14
4. Major Ohio Utilities - Net Generation by Types of Fuel (Ohio Portion) ..... 16
5. Major Ohio Electric Utilities, Fuel Consumption and Stocks (Ohio Portion) ..... 18
6. Ohio Electricity Consumption ..... 19
7-A. Ohio Electric Utilities' Projected Deliveries, Consumption, and Stocks of Coal for Electricity Generation ..... 25
7-B. Ohio Electric Utilities' Projected Deliveries, Consumption, and Stocks of Oil for Electricity Generation ..... 26
7-C. Electric Utilities' Generation Forecast, Fuel Assessment and Inventory Model ..... 27
8. Sources of Natural Gas Supplies to the Eight Major Gas Utilities ..... 41
9. Total Natural Gas Requirements of All Commercial Utilities in Ohio ..... 43
10. Ohio Natural Gas Prices in Current Dollars ..... 49
11. Ohio Natural Gas Prices in Constant Dollars ..... 50
12. Projected Aggregate Supply and Requirements for Natural Gas for Eight Major Utilities ..... 51
13. Comparison Between One Year of Actual and Forecast Demand for Eight Major Ohio Gas Utilities by Sector ..... 53
14. Comparison Between One Year of Actual and Forecast Supply for Eight Major Ohio Gas Utilities by Source ..... 55
15. The Growth of Non-tariff Industrial Sales in Ohio ..... 56
16. Independent Forecasts of Gas Supply and Demand for Eight Major Ohio Gas Utilities ..... 57
17. Independent Forecasts of Gas Supply and Demand for Cincinnati Gas and Electric Company ..... 58
18. Independent Forecasts of Gas Supply and Demand for Columbia Gas of Ohio ..... 59
19. Independent Forecasts of Gas Supply and Demand for Dayton Power and Light Company ..... 60
20. Independent Forecasts of Gas Supply and Demand for East Ohio Gas Company ..... 61

**Appendix A** ..... 63
A-1. Allegheny Power System Forecast of Net Energy for Load ..... 64
A-2. American Electric Power Forecast of Net Energy for Load ..... 65
A-3. Cincinnati Gas and Electric Forecast of Net Energy for Load ..... 66
A-4. Cleveland Electric Illuminating Company Forecast of Net Energy for Load ..... 67
A-5. Dayton Power and Light Forecast of Net Energy for Load ..... 68
A-6. Ohio Edison Company Forecast of Net Energy for Load ..... 69
A-7. Ohio Valley Electric Corporation Forecast of Net Energy for Load ..... 70
A-8. Toldeo Edison Company Forecast of Net Energy for Load ..... 71
A-9. Independent Forecast of Ohio Electricity Demand, Residential Sector ..... 72

A-10. Independent Forecast of Ohio Electricity Demand, Commercial Sector ..... 74
A-11. Independent Forecast of Ohio Electricity Demand, Industrial Sector ..... 76
A-12. Independent Forecast of Ohio Electricity Demand, All Sectors ..... 78

**Appendix B** ..... 85
B-1. Cincinnati Gas and Electric Forecast of Natural Gas Requirements ..... 86
B-2. Columbia Gas of Ohio Forecast of Natural Gas Requirements ..... 87
B-3. Dayton Power and Light Forecast of Natural Gas Requirements ..... 88
B-4. East Ohio Gas Forecast of Natural Gas Requirements ..... 89
B-5. Independent Forecast of Ohio Natural Gas End User Requirements, Residential Sector ..... 90
B-6. Independent Forecast of Ohio Natural Gas End User Requirements, Commercial Sector ..... 92
B-7. Independent Forecast of Ohio Natural Gas End User Requirements, Industrial Sector ..... 94
B-8. Independent Forecast of Ohio Natural Gas End User Requirements, All Sectors ..... 96
B-9. Projected Supply and Demand for Eight Major Ohio Natural Gas Utilities ..... 98

# LIST OF FIGURES


1. Population-Weighted State Degree Days for Ohio Winter Heating Seasons ..... 11
2. Monthly Coal Deliveries to Power Plants in Ohio ..... 13
3. Monthly Oil Deliveries to Power Plants in Ohio ..... 15
4. Net Generation by Type of Fuel, Major Ohio Electric Utilities ..... 17
5-A. Ohio Residential Electricity Consumption ..... 20
5-B. Ohio Commercial Electricity Consumption ..... 21
5-C. Ohio Industrial Electricity Consumption ..... 22
5-D. Ohio Total Electricity Consumption ..... 23
5-E. Monthly Electricity Consumption ..... 24
6. Sources of Natural Gas Supply for Eight Major Gas Utilities ..... 42
7-A. Ohio Residential Sector Natural Gas Consumption ..... 44
7-B. Ohio Commercial Sector Natural Gas Consumption ..... 45
7-C. Ohio Industrial Sector Natural Gas Consumption ..... 46
7-D. Total Ohio Natural Gas Consumption ..... 47
7-E. Monthly Gas Consumption ..... 48
8. Projected Supply and Requirements of Natural Gas by Sector: Total of Eight Major Companies ..... 52
9. Projected Requirements of Natural Gas by Sector: Eight Major Companies ..... 54

**Appendix A: Electricity Forecasts** ..... 63
A-1. Monthly Ohio Residential Electricity Consumption, Actual and Projected ..... 73
A-2. Monthly Ohio Commercial Electricity Consumption, Actual and Projected ..... 75
A-3. Monthly Ohio Industrial Electricity Consumption, Actual and Projected ..... 77
A-4. Monthly Ohio Total Electricity Consumption, Actual and Projected ..... 79
A-5. Annual Ohio Electricity Consumption and Prices: Residential Sector ..... 80
A-6. Annual Ohio Electricity Consumption and Prices: Commercial Sector ..... 81
A-7. Annual Ohio Electricity Consumption and Prices: Industrial Sector ..... 82
A-8. Annual Ohio Electricity Consumption and Prices: Total of All Sectors ..... 83

**Appendix B: Natural Gas Forecasts** ..... 85
B-1. Monthly Ohio Residential Natural Gas Consumption, Actual and Projected ..... 91
B-2. Monthly Ohio Commercial Natural Gas Consumption, Actual and Projected ..... 93
B-3. Monthly Ohio Industrial Natural Gas Consumption, Actual and Projected ..... 95
B-4. Monthly Ohio Total Natural Gas Consumption, Actual and Projected ..... 97

B-5. Annual Natural Gas Consumption, Prices, and Revenues: Residential Sector ..... 100
B-6. Annual Natural Gas Consumption, Prices, and Revenues: Commercial Sector ..... 101
B-7. Annual Natural Gas Consumption, Prices, and Revenues: Industrial Sector ..... 102
B-8. Annual Natural Gas Consumption, Prices, and Revenues: Total of All Sectors ..... 103
B-9. Annual Ohio Natural Gas Consumption by Sector ..... 104

# 1 INTRODUCTION

Ohio Short Term Forecast of Utility Fuels 1988-1989 is a summary, analysis and assessment of the patterns and trends in the monthly demands for the supplies of natural gas and electricity in Ohio for the twelve month period beginning November 1, 1988. The utilities' forecasts and historical data are the primary input for this report. Several other sources of information have also been used, including historical energy data and the independent forecasting capabilities developed by the Division of Forecasting and Siting, federal energy reports and publications from the American Gas Association and the Electric Power Research Institute. A comprehensive data base has been developed to support the Division of Forecasting and Siting's ability to provide timely analyses and forecasts. This report is the technical and forecast summary from these sources.

## 1.1 Objectives

The major objectives guiding the preparation of this report are:

1. To provide historical data on energy usage, projections of energy availability and projections of consumption for the coming year.
2. To provide an analysis and an interpretation of short-term changes in energy supply and demand.
3. To provide an assessment of the adequacy of natural gas and electric energy supply for the upcoming twelve months.
4. To provide a strategy to prevent or mitigate any interruption or curtailment of service, if a potential deficiency is identified.

## 1.2 Requirements and Scope of This Report

Ohio Revised Code, section 4905.14(B), requires the natural gas and electric utilities in Ohio to file short-term forecast reports with the Public Utilities Commission of Ohio on the first day of November of each year. These reports include the following information:

1. The total demand, stated in terms of kilowatt hours or cubic feet, that the company projects will be expected of the company for the following twelve months.
2. With respect to electric light companies, the supply of fuel for the generation of electricity that they will possess as of the first day of November.
3. With respect to natural gas companies, the pertinent details of supply contracts with pipeline companies and producers for the following twelve months that they have executed and the quantity of the gas that they will possess in storage and will be available for delivery as of the first day of November.
4. Where it appears from a comparison of the information reported that the total demand projected by the company for the twelve months following the date of the report will exceed the ability of the company to furnish it, the means which the company intends to employ in order to prevent any interruption or curtailment of service.

The Division of Forecasting and Siting prepares a summary, analysis and assessment of this information as an extention of its public information function.

The municipal utilities, industrial facilities and the rural electric cooperatives are not required to file this semi-annual report. Accordingly, this report incorporates data from the major electric and gas utilities serving the State. The Division of Forecasting and Siting estimates that in 1988 the major utilities included in this report provided approximately 96 percent of the electricity consumed in the State and 98 percent of the natural gas, excluding self-help gas.

## 1.3 Division of Forecasting and Siting Forecasts

As part of its analysis, the Division of Forecasting and Siting makes its own independent forecasts to serve as validation checks. The Division has the capability to forecast monthly demand by utility and for the State as a whole within a reasonable level of error (less than five percent in most cases). Such forecasts are based on an

analysis of historical month-by-month actual consumption for both electricity and natural gas and other appropriate variables such as population, income, the business cycle, and temperature data. However, as in any short-term forecast, certain important socioeconomic conditions are assumed in the independent forecasts. These assumptions are:

1. Energy consumption generally follows a seasonal and historical pattern.
2. Long-term socioeconomic changes have a minimal effect on short-term energy consumption.

## 1.4 Overview of This Report

The report is divided into two parts: electric energy and natural gas. Materials presented in these two parts are, for the most part, parallel in arrangement. They contain:

(a) a profile of reporting utilities;
(b) historical sources of supplies and suppliers;
(c) consumption history by sector, utility and the State;
(d) the utilities' forecasts and independent forecasts by the Division of Forecasting and Siting.

## 1.5 Energy Consumption and Temperature

Changes in the observed annual energy requirements of the three major consuming sectors (residential, commercial and industrial) may be explained by a variety of factors. Temperature is a variable which explains much of the observed variation. It is particularly significant in the residential and commercial sectors, during summer and winter periods, when electricity and natural gas are used to maintain comfortable room temperatures.

The two indicators most widely used to measure temperature-sensitive energy requirements are heating degree days and cooling degree days. Degree days are calculated as follows: The daily mean temperature is obtained by adding together the maximum and minimum temperatures reported for the day and dividing the total by

two. When the daily mean temperature is 65 degrees Fahrenheit, the degree day total is zero. Each degree of mean temperature below 65 degrees Fahrenheit is counted as one heating degree day. For example, if the maximum temperature was 60 degrees Fahrenheit and the minimum temperature was 50 degrees Fahrenheit for a particular day, then the daily mean temperature would be 55 degrees Fahrenheit {(60+50)/2}. The number of heating degree days would be 10 {65-55}. This is a convenient indicator because the amount of heat required to maintain a certain temperature level is proportional to heating degree days in winter.

The cooling degree days are defined similarly; Each degree of mean temperature above 65 degree Fahrenheit is counted as one cooling degree day. If the daily mean temperature is 65 degree Fahrenheit or lower, the cooling degree day total is zero. For example, if the maximum temperature was 80 degrees Fahrenheit and the minimum temperature was 70 degrees Fahrenheit for a particular day, then the daily mean temperature would be 75 degrees Fahrenheit {(80+70)/2}. The number of cooling degree days would be 10 {75-65}. This is another convenient forecasting indicator because the amount of energy required to maintain a certain temperature level is proportional to cooling degree days in summer.

Since most homes and commercial buildings in Ohio are heated by natural gas, the reporting gas utilities are required to submit supply and demand forecasts under a normal winter scenario and a 10 percent colder than normal winter scenario. In addition, the relationship between natural gas consumption and heating degree days is closely monitored during the winter heating season (from November through March).

Table 1 and Figure 1 present monthly comparisons of population-weighted state heating degree days for the past two heating seasons. A "normal" heating degree day series, defined as the 18 year average of the years 1970 to 1987 is also included in the comparisons.

# 2 ELECTRICITY

This section is based on the November forecasts filed by nine major Ohio electric utilities. Columbus Southern Power Company and Ohio Power Company are subsidiaries of the American Electric Power Company. Because the centrally dispatched American Electric Power operates as a integrated distribution system, the report reviews forecasts of demand and fuel adequacy for the entire American Electric Power Company. The Allegheny Power System is also a centralized power generation and distribution system and is reviewed in the same manner. One subsidiary Monongahela Power, is a Pennsylvania utility whose service area includes a part of southeast Ohio. While Cleveland Electric Illuminating Company and Toledo Edison Company are subsidiaries of Centerior Energy Corporation, both companies submit separate forecasts and will be treated as separate companies within the context of this report. The forecasts of eight utilities serving Ohio are presented as follows:

1. Allegheny Power System (APS) Monongahela Power Company
   Other out-of-state subsidiaries not subject to reporting
2. American Electric Power Company (AEP)
   Columbus Southern Power Company (CSP)
   Ohio Power Company (OP)
   Other out-of-state subsidiaries not subject to reporting
3. Cincinnati Gas and Electric Company (CG&E)
4. Cleveland Electric Illuminating Company (CEI)
5. Dayton Power and Light Company (DP&L)
6. Ohio Edison Company (and its subsidiary Pennsylvania Power Company, which is not subject to reporting) (OE)
7. Ohio Valley Electric Corporation (OVEC)
8. Toledo Edison Company (TE)

With the exception of OVEC, each of these is an investor-owned utility supplying electricity to residential, commercial and industrial customers in its service area. The

Ohio Valley Electric Corporation is a single-customer utility supplying power for the uranium enrichment plant at Piketon, Ohio. It also sells surplus generation to other electric utilities.

## 2.1 Supply and Generation

### 2.1.1 Source/Supplier of Fuel for Electric Generation

Fuels used in Ohio for electric generation include coal, oil, natural gas and nuclear fuel. Nuclear fuel sources are not monitored by the Division. All other fuels are monitored through the utilities' monthly reports. Tables 2 and 3 list coal and oil deliveries to power plants located in Ohio. The main sources of supply and/or suppliers of these fuels remain the same as in the last reporting period.

Coal deliveries to Ohio electric plants during the twelve months ending July 1988 increased by 1,650,600 short tons or 3.61 percent from the previous twelve month period (see Table 2 and Figure 2). Deliveries of oil to Ohio power plants increased by 118,200 barrels or 29.67 percent during the twelve months ending July 1988 from the previous twelve month period (see Table 3 and Figure 3).

### 2.1.2 Electric Generation by Type of Fuel

Coal remains the main source of fuel for electric generation in Ohio, a condition which is not expected to change in the future. In the twelve month period ending July 1988, 92.58 percent of the total electricity generated in Ohio was from coal, 0.09 percent from gas and oil and 7.33 percent from nuclear generation.

The amount of electricity generated for Ohio by nuclear power continues to grow. From August 1987 to July 1988, Davis-Besse and Perry, the two nuclear generation facilities in Ohio, generated over 9 million megawatt-hours which was over three times the amount generated in the previous twelve months. One reason for this increase in electric generation by nuclear power was that Davis Besse was shut down for most of 1986. Perry 1, on the other hand, came on-line for the first

time in 1987. Another reason was that when the plants were in operation, the average monthly electric generation for the year ending in July 1988 was 759 megawatt-hours as compared to 429 megawatt-hours for the previous year.

Table 4 and Figure 4 show the combined monthly totals of the reporting utilities' net generation from Ohio plants. Historical power plant fuel consumption and fuel stocks are presented in Table 5.

## 2.2 Historical Behavior of Sectoral Requirements

Electricity consumption by the residential and commercial sectors exhibits regular seasonal patterns while the industrial sector fluctuates widely with general economic conditions (see Appendix A).

Residential sectoral consumption posted a 4.3 percent gain for the twelve month period ending in August 1988 compared to a 4.0 percent increase last year (see Table 6 and Figure 5-A). The increase in the 1987-1988 period was mainly due to the warmer than normal summer months of July and August which resulted in a 9.4 percent increase in sales for those two months.

Commercial sectoral consumption posted a 4.0 percent gain for the year ending in August 1988 (see Table 6 and Figure 5-B). Historically, July and August represent the two months in which commercial sales are usually at their highest for the year. The warmer than normal summer months were a major factor in the rise of sales in the commercial sector. There was a 7.1 percent increase in consumption in 1988 versus 1987 for the two summer months of July and August.

Industrial sectoral consumption posted a 8.3 percent gain for the twelve month period ending in August 1988 compared to a 2.0 percent increase in August 1987 (see Table 6 and Figure 5-C). With the continuation of the current recovery phase in 1988, industrial sales have experienced robust growth throughout the year. Industrial sales were up 10.6 percent for the first half of the year months versus the previous year and up 6.1 percent for the latter half of the year. A large surge of industrial sales in August (8.7 percent increase for the same month of the previous year) helped the industrial sector to exhibit a sizable increase for the 1987-1988 year.

Total electricity consumption in the State for between September 1987 and

August 1988 was 6.1 percent higher than the preceding twelve months (see Table 6 and Figures 5-D & 5-E). Total sales from September 1987 to March 1988 were substantially higher than the previous year due mainly to the large increases from the industrial sector. Consumption increased at a leisurely 2.6 percent for the next few months, but from July to August, total consumption continued its rapid growth with a 7.5 percent rise over the previous year. This increase was mainly due to the much warmer than normal temperatures experienced in the summer of 1988.

## 2.3 Twelve Month Electricity Demand Forecasts

Each electric utility is required by the Ohio Revised Code, section 4905.14(B), to submit forecasts at the beginning of July and November to the Public Utilities Commission of Ohio, Division of Forecasting and Siting. The forecasts are required to project the total demand of each company's service area for the following twelve months. These forecasts are displayed in Appendix A, Tables A-1 through A-8, along with independent forecasts prepared by the Division of Forecasting and Siting. The Division also prepares independent twelve month forecasts of electricity demand for the State of Ohio, by sector. These forecasts are displayed in Appendix A, Tables A-9 through A-12.

## 2.4 Assessment of Utility Fuel Adequacy

Tables 7-A and 7-B present the utilities' projections of deliveries, consumption, and end-of-month stocks of coal and oil for the generation of electricity. Table 7-C presents the Division's independent assessment of the adequacy of supply of generating fuels. The Division's projections and assessments are presented for the CAPCO Group of utilities, which include Cleveland Electric Illuminating Company, Ohio Edison Company, and Toledo Edison Company; for the American Electric Power and Allegheny Power Systems, and for Buckeye Power Inc., Dayton Power and Light Company, Cincinnati Gas and Electric Company, and the Ohio Valley Electric Corporation.

### 2.4.1 Coal

The Division's projections, as well as those of the electric utilities, indicate an adequate supply of coal throughout the forecast period for each utility serving the State. The Ohio Valley Electric Corporation possessed the highest average monthly inventory of coal with about 2.4 months of supplies while Allegheny Power System retained the lowest average monthly inventory with a little over 2 months of coal supplies in stock. The average monthly inventory for the eight companies under consideration was 56 days.

### 2.4.2 Oil

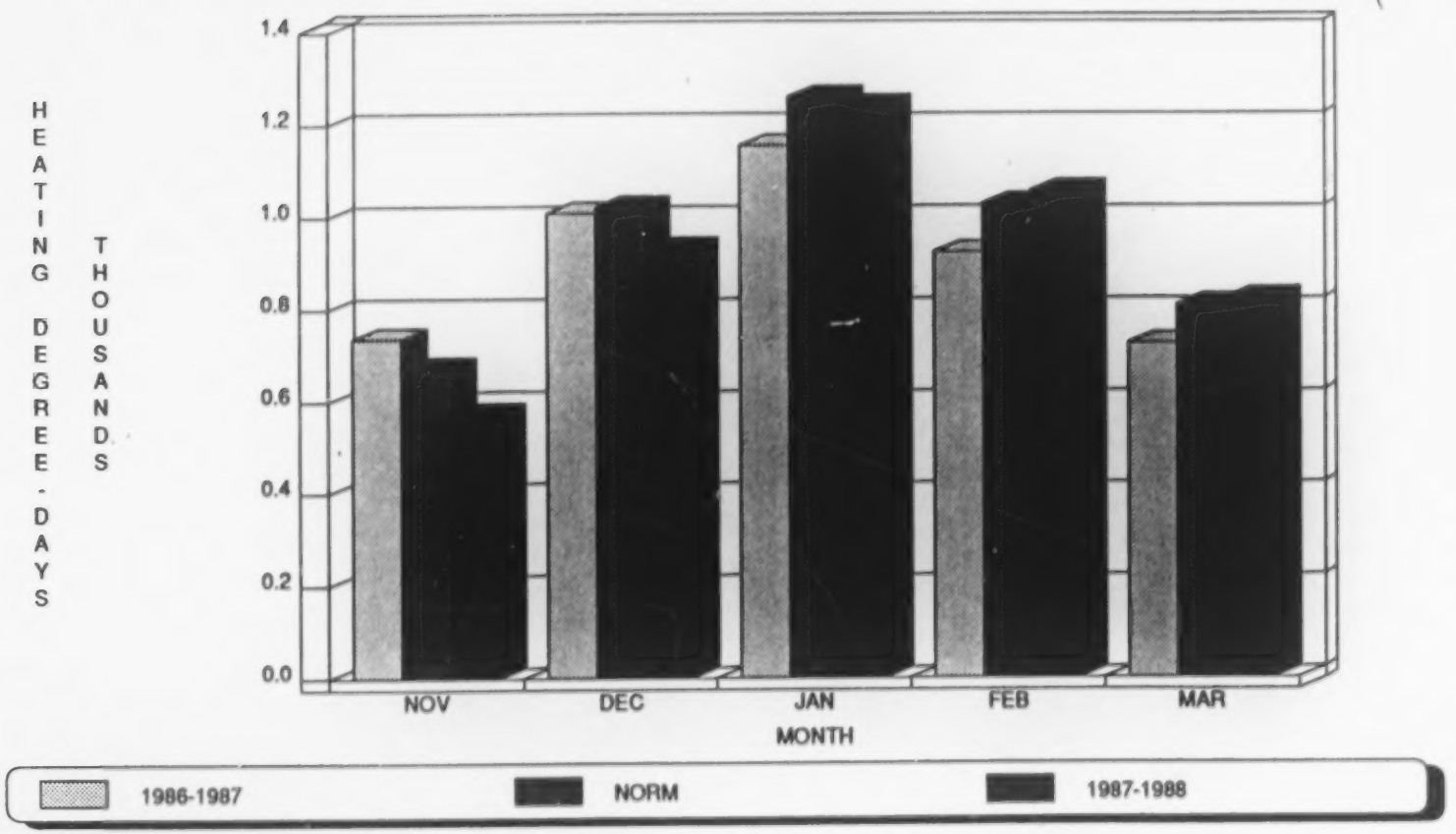
Each electric utility forecasts an adequate supply of oil for the generation of electricity throughout the forecast period. Net generation from oil is currently less than 0.1 percent of total net generation. Oil is being used as a start-up fuel and in peaking units. Due to the current high reserve margins for all utilities, the Division does not anticipate that the utilities will generate much electricity from peaking units and consequently our projections indicate that there will be an adequate supply of oil, under normal generating conditions.

**TABLE 1. POPULATION-WEIGHTED HEATING DEGREE-DAY SUMMARY FOR OHIO[1] NOVEMBER 1986 to MARCH 1988**

| MONTH | 1987-1988 | NORM | 1986-1987 |
|---|---|---|---|
| NOVEMBER | 574 | 673 | 737 |
| DEVIATION FROM NORM | -15.5% | | 8.5% |
| DEVIATION FROM PREVIOUS YEAR | -22.1% | | 35.0% |
| DECEMBER | 932 | 1022 | 1009 |
| DEVIATION FROM NORM | -9.3% | | -1.8% |
| DEVIATION FROM PREVIOUS YEAR | -7.6% | | -18.9% |
| JANUARY | 1240 | 1259 | 1154 |
| DEVIATION FROM NORM | -1.6% | | -8.4% |
| DEVIATION FROM PREVIOUS YEAR | 7.5% | | -0.8% |
| FEBRUARY | 1056 | 1028 | 923 |
| DEVIATION FROM NORM | 2.8% | | -10.1% |
| DEVIATION FROM PREVIOUS YEAR | 14.4% | | -4.6% |
| MARCH | 822 | 809 | 726 |
| DEVIATION FROM NORM | 1.7% | | -10.1% |
| DEVIATION FROM PREVIOUS YEAR | 13.2% | | -3.8% |

1 Source: National Oceanic and Atmospheric Administration, Historical Climatology Series 5-1 and the Division of Forecasting and Siting.

# Figure 1. POPULATION - WEIGHTED DEGREE DAYS FOR OHIO WINTER HEATING SEASONS (1987 & 1988)




Source: National Oceanic & Atmospheric Administration.

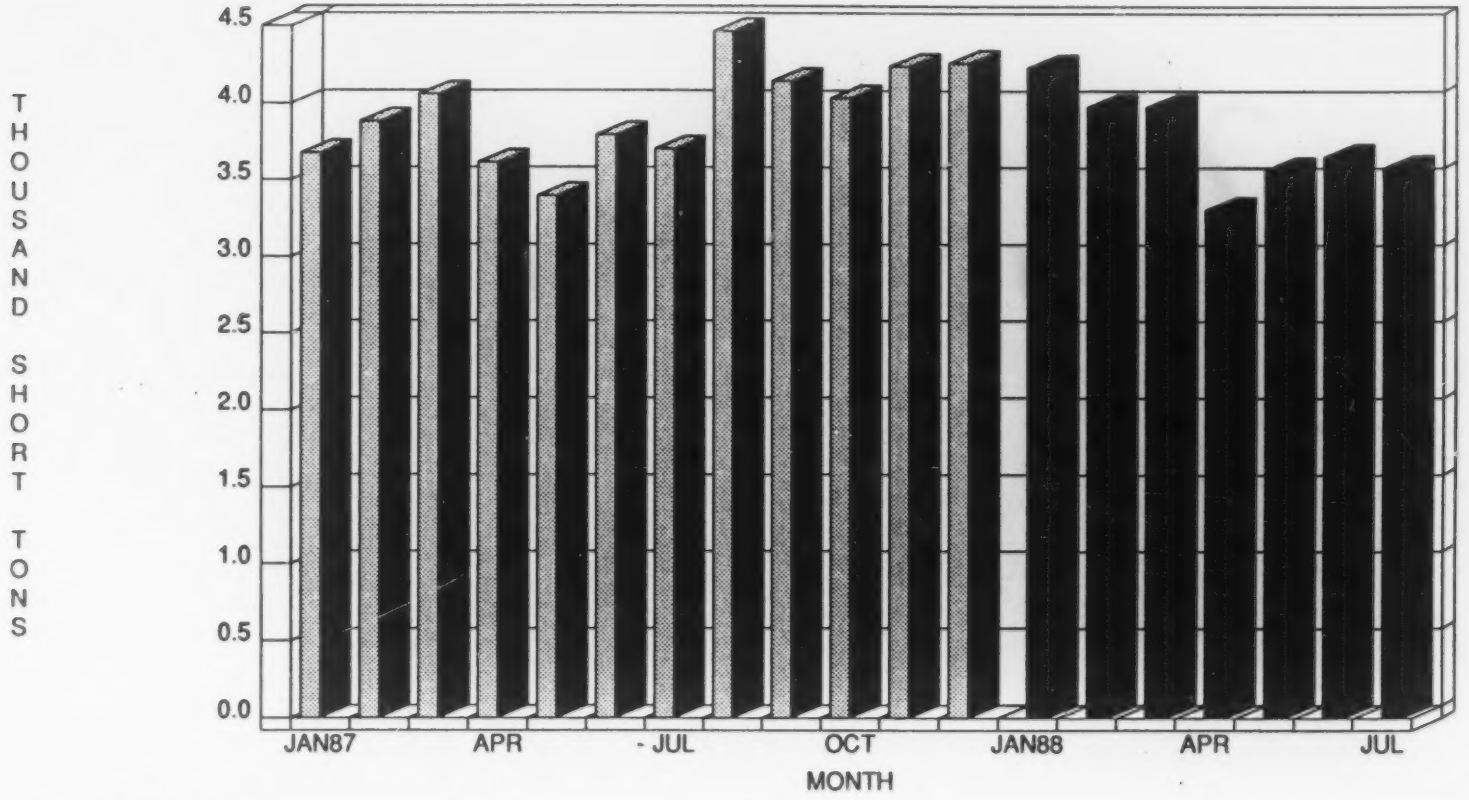
## TABLE 2. SOURCE OF COAL SUPPLY TO ELECTRIC UTILITIES
## OHIO PORTION[1]
## 1000 Short Tons

| | DISTRICT NO. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Month | 1 | 2 | 3 | 4 | 6 | 7&8 | 9 | Other | Total |
| 1986 | | | | | | | | | |
| January | 0.0 | 139.0 | 23.2 | 2,355.5 | 306.6 | 1,110.7 | 34.1 | 0.0 | 3,969.1 |
| February | 0.0 | 260.1 | 32.5 | 2,025.3 | 325.9 | 1,194.3 | 51.3 | 0.0 | 3,889.4 |
| March | 0.0 | 273.6 | 30.6 | 2,076.8 | 327.9 | 1,411.8 | 28.0 | 0.0 | 4,148.7 |
| April | 0.0 | 304.0 | 44.6 | 2,088.6 | 169.0 | 1,246.9 | 63.4 | 0.0 | 3,916.5 |
| May | 0.0 | 229.8 | 31.3 | 2,019.8 | 304.3 | 1,117.2 | 28.6 | 0.0 | 3,731.0 |
| June | 0.0 | 211.4 | 26.3 | 2,067.0 | 106.5 | 1,457.7 | 47.4 | 0.0 | 3,916.3 |
| July | 0.0 | 275.3 | 51.8 | 1,726.7 | 206.9 | 1,200.1 | 57.8 | 0.0 | 3,518.6 |
| August | 0.0 | 312.7 | 6.0 | 2,085.4 | 258.9 | 1,410.6 | 8.9 | 0.0 | 4,082.5 |
| September | 0.0 | 196.7 | 14.0 | 2,005.2 | 295.3 | 1,395.5 | 1.4 | 3.2 | 3,911.3 |
| October | 0.0 | 285.2 | 22.1 | 2,137.1 | 441.3 | 1,139.0 | 23.9 | 0.0 | 4,048.6 |
| November | 0.0 | 266.6 | 19.0 | 1,861.7 | 296.5 | 1,312.4 | 56.8 | 0.0 | 3,813.0 |
| December | 0.0 | 307.9 | 13.0 | 1,895.4 | 284.5 | 1,278.0 | 16.9 | 0.0 | 3,795.7 |
| Total | 0.0 | 3,062.3 | 314.4 | 24,344.5 | 3,323.6 | 15,274.2 | 418.5 | 3.2 | 46,740.7 |
| % of Total | 0.0 | 6.6 | 0.7 | 52.1 | 7.1 | 32.7 | 0.9 | 0.0 | 100.0 |
| 1987 | | | | | | | | | |
| January | 0.0 | 252.1 | 18.0 | 2,021.0 | 316.0 | 1,031.6 | 37.5 | 0.0 | 3,676.2 |
| February | 0.0 | 256.3 | 23.1 | 2,053.9 | 276.7 | 1,248.5 | 21.2 | 0.0 | 3,879.7 |
| March | 0.0 | 277.4 | 12.2 | 2,202.9 | 342.9 | 1,167.2 | 54.4 | 0.0 | 4,057.0 |
| April | 0.0 | 227.8 | 29.0 | 1,893.8 | 287.9 | 1,159.1 | 18.0 | 1.5 | 3,617.1 |
| May | 0.0 | 192.8 | 41.0 | 1,751.1 | 304.5 | 1,093.2 | 4.6 | 12.7 | 3,399.9 |
| June | 0.0 | 346.9 | 0.0 | 1,765.0 | 277.8 | 1,382.4 | 3.1 | 18.2 | 3,793.4 |
| July | 10.0 | 305.4 | 21.0 | 1,937.9 | 183.8 | 1,218.9 | 12.3 | 12.5 | 3,701.8 |
| August | 11.0 | 365.3 | 22.5 | 2,201.9 | 286.7 | 1,401.1 | 178.1 | 0.0 | 4,466.6 |
| September | 4.0 | 305.9 | 13.0 | 2,150.4 | 310.4 | 1,322.8 | 35.8 | 0.0 | 4,142.3 |
| October | 11.0 | 216.7 | 1.5 | 2,206.0 | 276.1 | 1,323.5 | 0.0 | 0.0 | 4,034.8 |
| November | 10.0 | 327.9 | 6.1 | 2,186.3 | 259.3 | 1,448.6 | 1.4 | 0.0 | 4,239.6 |
| December | 0.0 | 248.5 | 1.5 | 2,334.1 | 60.6 | 1,604.9 | 10.8 | 1.5 | 4,261.9 |
| Total | 46.0 | 3,323.0 | 188.9 | 24,704.3 | 3,182.7 | 15,401.8 | 377.2 | 46.4 | 47,270.3 |
| % of Total | 0.1 | 7.0 | 0.4 | 52.3 | 6.7 | 32.6 | 0.8 | 0.1 | 100.0 |
| 1988 | | | | | | | | | |
| January | 10.0 | 256.4 | 0.0 | 2,345.2 | 257.1 | 1,356.1 | 0.0 | 7.1 | 4,231.9 |
| February | 0.0 | 261.2 | 0.0 | 2,148.7 | 285.0 | 1,246.4 | 33.6 | 0.0 | 3,974.9 |
| March | 8.0 | 355.9 | 0.0 | 1,959.4 | 266.4 | 1,325.8 | 31.3 | 30.4 | 3,977.2 |
| April | 40.0 | 234.4 | 12.0 | 1,841.6 | 299.4 | 853.7 | 13.7 | 13.5 | 3,308.3 |
| May | 43.0 | 260.6 | 20.2 | 1,736.7 | 262.2 | 1,178.7 | 20.9 | 33.8 | 3,566.1 |
| June | 0.0 | 82.0 | 57.0 | 1,886.9 | 246.4 | 1,338.8 | 28.5 | 13.2 | 3,652.8 |
| July | 10.0 | 208.9 | 38.7 | 1,743.2 | 95.1 | 1,439.9 | 38.8 | 5.8 | 3,580.4 |

District
1. Eastern Pennsylvania
2. Western Pennsylvania
3. Northern West Virginia
4. Ohio
6. Panhandle (in West Virginia)
7. Southern No. 1 (in West Virginia and Virginia)
8. Southern No. 2 (in West Virginia and Virginia)
9. Western Kentucky
Other- Primarily from Wyoming and Utah

1 Source: Form FPC 423.

## Figure 2. MONTHLY COAL DELIVERIES TO POWER PLANTS IN OHIO (JANUARY 1987 - JULY 1988)



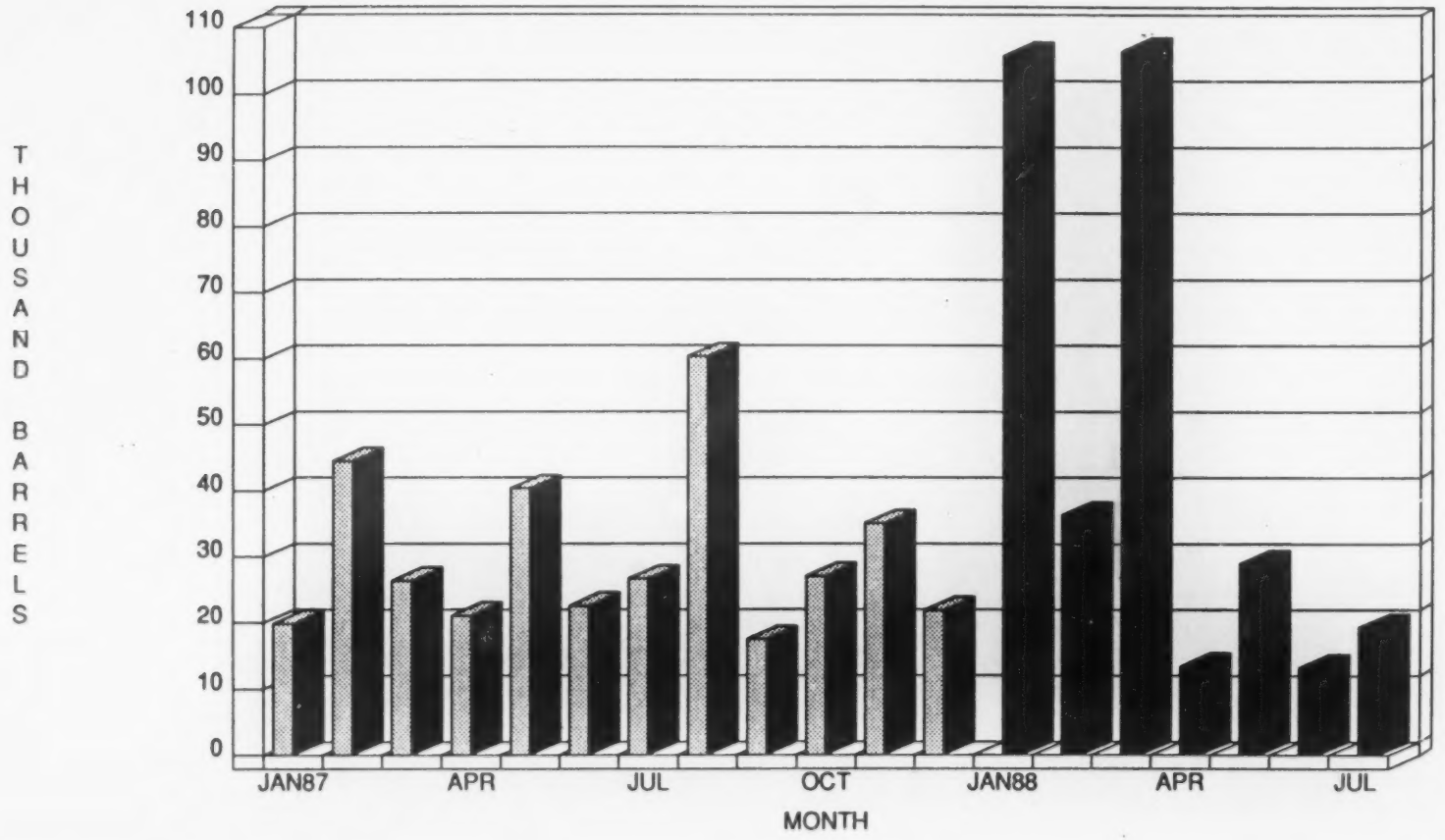

Source: Form FPC 423.

## Table 3. Major Oil Suppliers to Electric Utilities
## Ohio Portion[1]
## (Thousand Barrels)

| | Allied | Marathon | Standard | Union | Other | Total |
|---|---|---|---|---|---|---|
| **1986** | | | | | | |
| January | 8.1 | 0.2 | 4.4 | 0.0 | 3.6 | 16.3 |
| February | 19.1 | 0.0 | 3.1 | 0.0 | 8.9 | 31.1 |
| March | 39.6 | 0.0 | 16.8 | 0.0 | 6.5 | 62.9 |
| April | 24.3 | 0.0 | 0.0 | 0.0 | 7.9 | 32.2 |
| May | 10.8 | 0.0 | 3.1 | 0.0 | 3.6 | 17.5 |
| June | 7.2 | 0.0 | 3.8 | 0.0 | 2.5 | 13.5 |
| July | 18.0 | 0.0 | 3.2 | 0.0 | 4.4 | 25.6 |
| August | 37.6 | 0.0 | 0.4 | 0.0 | 0.8 | 38.8 |
| September | 9.4 | 0.0 | 4.5 | 0.0 | 0.8 | 14.7 |
| October | 10.6 | 0.0 | 4.6 | 0.0 | 25.6 | 40.8 |
| November | 41.4 | 0.0 | 3.8 | 0.0 | 12.9 | 58.1 |
| December | 13.1 | 0.0 | 0.0 | 0.0 | 31.3 | 44.4 |
| Total | 239.2 | 0.2 | 47.7 | 0.0 | 108.8 | 395.9 |
| % of Total | 60.4 | 0.1 | 12.0 | 0.0 | 27.5 | 100.0 |
| **1987** | | | | | | |
| January | 13.9 | 0.0 | 0.0 | 0.0 | 6.0 | 19.9 |
| February | 10.2 | 0.0 | 0.5 | 0.0 | 33.8 | 44.5 |
| March | 10.1 | 0.4 | 0.2 | 0.0 | 15.7 | 26.4 |
| April | 12.8 | 0.0 | 0.5 | 0.0 | 7.8 | 21.1 |
| May | 31.2 | 0.0 | 0.5 | 0.0 | 8.7 | 40.4 |
| June | 14.6 | 0.0 | 0.0 | 0.0 | 8.0 | 22.6 |
| July | 21.4 | 0.0 | 0.2 | 0.0 | 5.1 | 26.7 |
| August | 39.2 | 0.0 | 0.0 | 0.0 | 21.2 | 60.4 |
| September | 9.5 | 0.0 | 2.9 | 0.0 | 5.1 | 17.5 |
| October | 16.7 | 0.0 | 3.3 | 0.0 | 7.1 | 27.1 |
| November | 15.8 | 0.0 | 0.7 | 0.0 | 18.6 | 35.1 |
| December | 9.2 | 0.0 | 4.2 | 0.0 | 8.5 | 21.9 |
| Total | 204.6 | 0.4 | 13.0 | 0.0 | 145.6 | 363.6 |
| % of Total | 56.3 | 0.1 | 3.6 | 0.0 | 40.0 | 100.0 |
| **1988** | | | | | | |
| January | 37.9 | 0.0 | 4.7 | 0.0 | 63.2 | 105.8 |
| February | 21.0 | 0.0 | 0.0 | 0.0 | 15.3 | 36.3 |
| March | 49.6 | 0.0 | 0.3 | 0.0 | 56.6 | 106.5 |
| April | 6.7 | 0.0 | 0.9 | 0.0 | 5.8 | 13.4 |
| May | 20.2 | 0.0 | 0.2 | 0.0 | 8.6 | 29.0 |
| June | 6.9 | 0.0 | 0.0 | 0.0 | 6.3 | 13.2 |
| July | 43.9 | 0.0 | 0.0 | 0.0 | 6.5 | 50.4 |

1 Source: Form FPC 423.

# Figure 3. MONTHLY OIL DELIVERIES TO POWER PLANTS IN OHIO (JANUARY 1987 - JULY 1988)



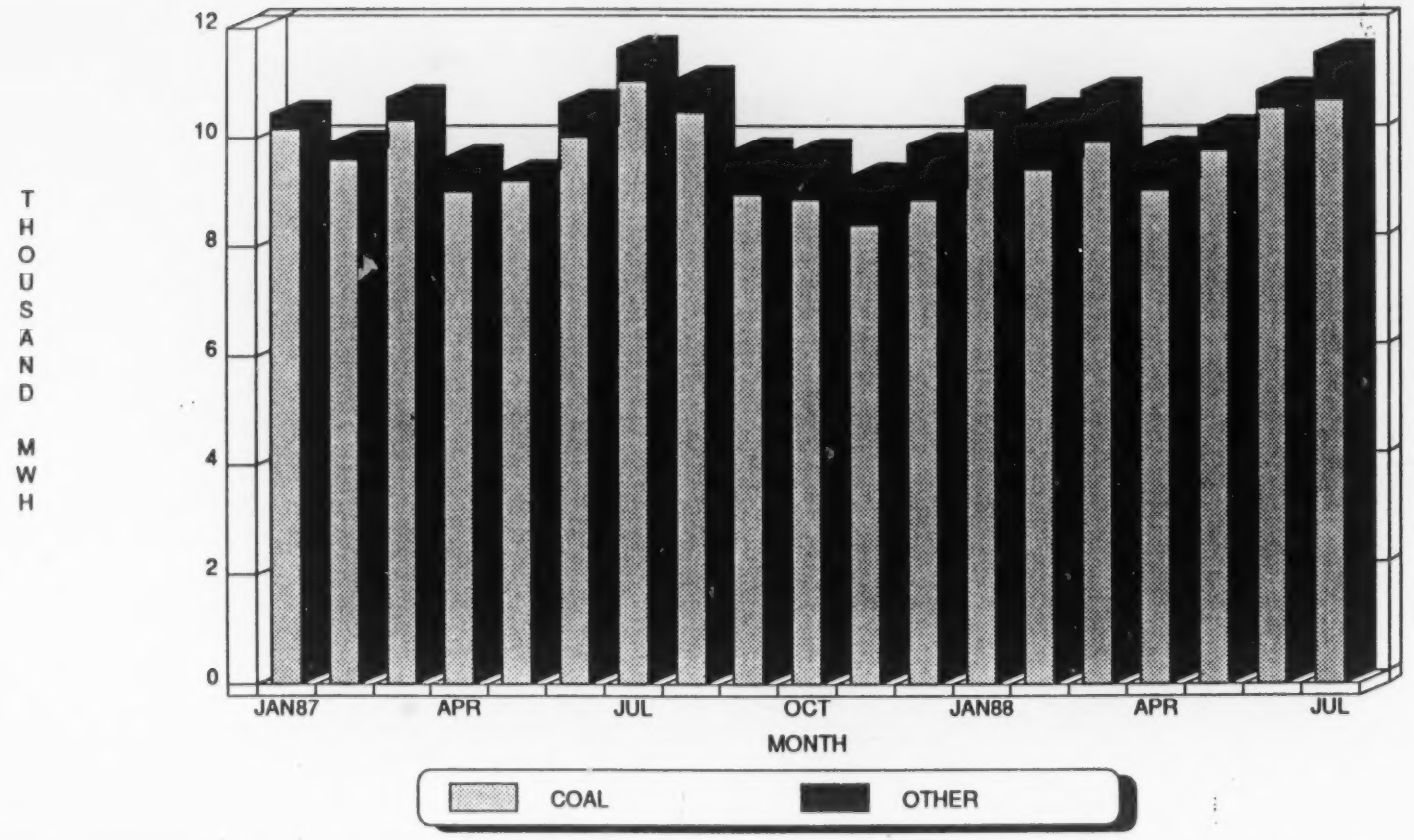

Source: Form FPC 423.

## Table 4. Major Ohio Utilities - Net Generation by Types of Fuel (Ohio Portion)[1] (Thousand MWH)

| | Coal | Oil | Gas | Nuclear | Total |
|---|---|---|---|---|---|
| **1986** | | | | | |
| January | 10183 | 6 | 1 | 0 | 10190 |
| February | 10015 | 6 | 0 | 0 | 10021 |
| March | 10108 | 3 | 0 | 0 | 10111 |
| April | 9063 | 3 | 0 | 0 | 9066 |
| May | 9569 | 6 | 0 | 0 | 9575 |
| June | 10716 | 6 | 0 | 0 | 10722 |
| July | 10905 | 11 | 2 | 0 | 10918 |
| August | 9875 | 3 | 0 | 0 | 9878 |
| September | 8599 | 14 | 0 | 0 | 8613 |
| October | 8312 | 9 | 0 | 0 | 8321 |
| November | 9243 | 4 | 0 | 0 | 9247 |
| December | 9615 | 5 | 0 | 24 | 9644 |
| Total | 116203 | 76 | 3 | 24 | 116306 |
| % of Total | 99.91 | 0.07 | 0.00 | 0.02 | 100.00 |
| **1987** | | | | | |
| January | 10152 | 6 | 0 | 289 | 10448 |
| February | 9583 | 5 | 0 | 323 | 9912 |
| March | 10318 | 5 | 0 | 415 | 10738 |
| April | 9008 | 5 | 0 | 615 | 9628 |
| May | 9197 | 9 | 0 | 149 | 9355 |
| June | 10010 | 7 | 0 | 635 | 10652 |
| July | 11033 | 23 | 0 | 576 | 11633 |
| August | 10466 | 9 | 0 | 613 | 11088 |
| September | 8949 | 5 | 0 | 827 | 9782 |
| October | 8862 | 5 | 0 | 894 | 9762 |
| November | 8412 | 15 | 0 | 885 | 9313 |
| December | 8854 | 2 | 0 | 1017 | 9873 |
| Total | 114845 | 97 | 3 | 7238 | 122182 |
| % of Total | 93.99 | 0.08 | 0.00 | 5.92 | 100.00 |
| **1988** | | | | | |
| January | 10185 | 22 | 0 | 537 | 10744 |
| February | 9409 | 5 | 0 | 1085 | 10499 |
| March | 9928 | 3 | 0 | 945 | 10876 |
| April | 9033 | 3 | 0 | 758 | 9794 |
| May | 9763 | 3 | 0 | 424 | 10190 |
| June | 10551 | 7 | 0 | 312 | 10870 |
| July | 10708 | 32 | 0 | 815 | 11555 |

1 Source: Form FPC 423.

# Figure 4. NET GENERATION BY TYPE OF FUEL MAJOR OHIO ELECTRIC UTILITIES (OHIO PORTION) (JANUARY 1987 - JULY 1988)




Source: Form FPC 423.

**Table 5. Major Ohio Utilities**
**Fuel Consumption and Stocks[1]**
**(Ohio Portion)**

| | Coal | | Oil | | Gas |
|---|---|---|---|---|---|
| | (Thousand Tons) | | (Thousand 42-Gal. Bbls.) | | (MMCF) |
| | Burned | In Stock | Burned | In Stock | Burned |
| **1986** | | | | | |
| January | 4,461.2 | 10,075.2 | 56.9 | 400.1 | 26.5 |
| February | 4,419.4 | 9,667.1 | 46.9 | 390.6 | 24.1 |
| March | 4,432.8 | 9,329.7 | 42.3 | 409.9 | 46.7 |
| April | 4,052.1 | 9,863.2 | 36.9 | 414.7 | 4.8 |
| May | 4,202.4 | 9,729.0 | 49.2 | 407.0 | 29.1 |
| June | 4,718.1 | 9,315.8 | 44.2 | 388.1 | 36.9 |
| July | 4,910.3 | 8,234.0 | 62.0 | 376.1 | 59.7 |
| August | 4,370.7 | 8,339.5 | 48.0 | 419.2 | 29.2 |
| September | 3,774.3 | 8,996.7 | 59.5 | 406.1 | 29.5 |
| October | 3,654.7 | 9,846.4 | 64.4 | 413.5 | 17.5 |
| November | 4,007.6 | 10,134.1 | 57.1 | 434.1 | 19.7 |
| December | 4,106.1 | 10,260.1 | 47.3 | 428.8 | 23.7 |
| Total | 51,109.7 | 113,790.8 | 614.7 | 4,888.3 | 347.4 |
| Avg/Month | 4,259.1 | 9,482.6 | 51.2 | 407.4 | 29.0 |
| **1987** | | | | | |
| January | 4,367.7 | 10,045.9 | 49.1 | 318.0 | 20.2 |
| February | 4,108.8 | 10,202.2 | 37.0 | 411.4 | 13.6 |
| March | 4,460.5 | 10,314.8 | 45.9 | 424.4 | 22.4 |
| April | 3,947.0 | 10,426.0 | 49.0 | 407.4 | 40.1 |
| May | 4,123.6 | 10,150.8 | 55.9 | 406.9 | 44.9 |
| June | 4,335.6 | 10,110.4 | 58.7 | 395.4 | 31.8 |
| July | 4,832.1 | 9,277.0 | 96.6 | 355.9 | 59.5 |
| August | 4,653.9 | 9,326.3 | 47.5 | 374.4 | 42.5 |
| September | 3,886.2 | 9,823.0 | 44.5 | 370.2 | 29.3 |
| October | 3,844.1 | 10,391.4 | 52.3 | 346.1 | 27.3 |
| November | 3,508.4 | 11,316.4 | 68.1 | 375.8 | 30.1 |
| December | 3,850.4 | 11,797.6 | 49.5 | 338.4 | 11.2 |
| Total | 49,918.3 | 123,181.8 | 654.1 | 4,524.3 | 372.9 |
| Avg/Month | 4,159.9 | 10,265.2 | 54.5 | 377.0 | 31.1 |
| **1988** | | | | | |
| January | 4,341.9 | 11,681.5 | 101.7 | 359.8 | 20.8 |
| February | 4,123.2 | 11,598.6 | 45.2 | 352.9 | 19.3 |
| March | 4,276.9 | 11,180.1 | 38.5 | 411.2 | 35.8 |
| April | 3,923.6 | 10,770.8 | 34.3 | 408.1 | 19.7 |
| May | 4,212.3 | 10,438.1 | 39.3 | 394.3 | 24.5 |
| June | 4,632.8 | 10,364.2 | 90.7 | 364.5 | 27.6 |
| July | 4,727.1 | 9,330.7 | 108.3 | 323.9 | 39.2 |

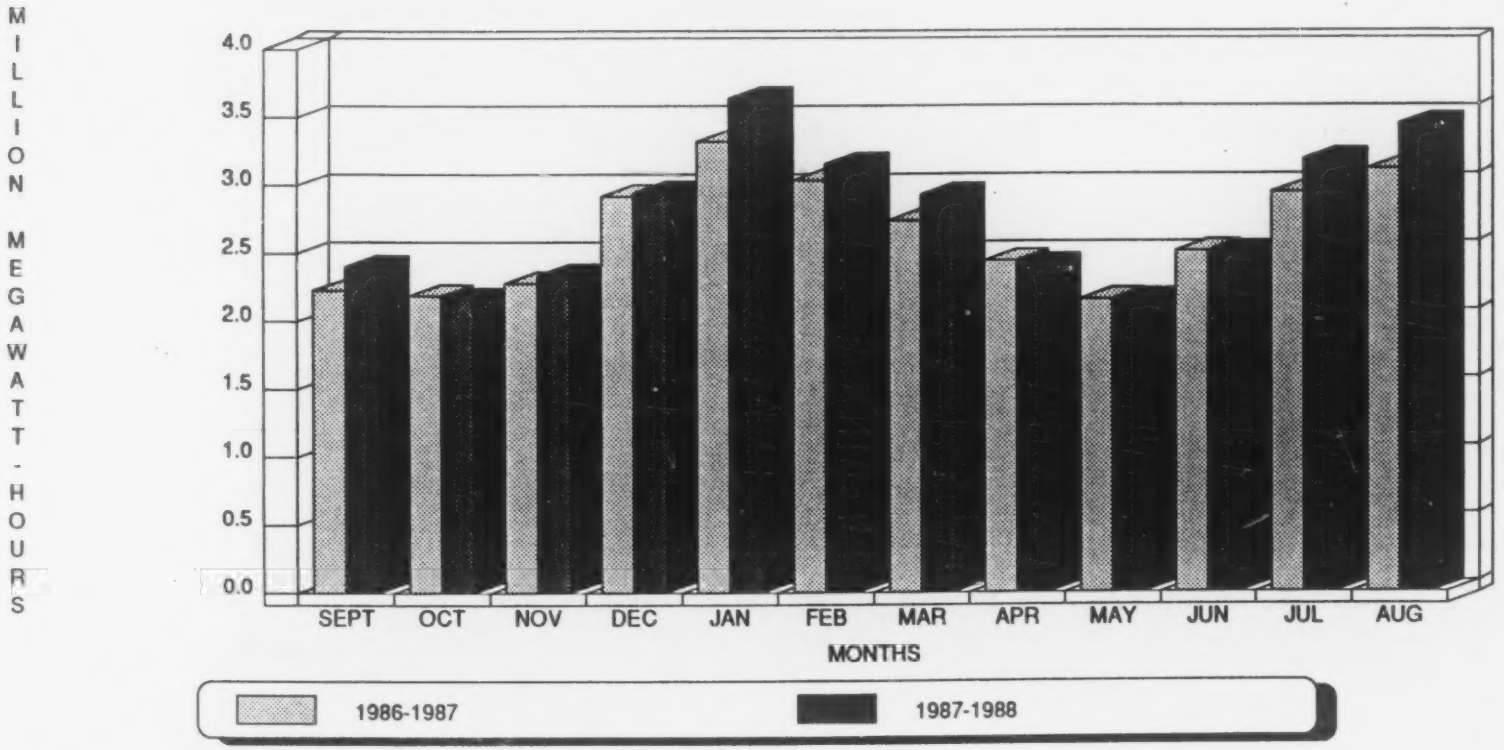
1 Source: Form FPC 423.

## Table 6. Ohio Electricity Consumption[1]
## September 1986 - August 1988
## (Thousand MWH)

| | September | October | November | December | January | February | March | April | May | June | July | August | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Residential | | | | | | | | | | | | | |
| 1987-88 | 2403 | 2163 | 2338 | 2947 | 3640 | 3156 | 2930 | 2413 | 2152 | 2491 | 3185 | 3449 | 33267 |
| 1986-87 | 2229 | 2189 | 2283 | 2923 | 3323 | 3036 | 2743 | 2444 | 2158 | 2514 | 2946 | 3117 | 31905 |
| % Change | 8 | -1 | 2 | 1 | 10 | 4 | 7 | -1 | 0 | 1 | 8 | 11 | 4 |
| | | | | | | | | | | | | | |
| Commercial | | | | | | | | | | | | | |
| 1987-88 | 2229 | 2015 | 1931 | 2115 | 2294 | 2209 | 2180 | 1985 | 1991 | 2340 | 2594 | 2702 | 26585 |
| 1986-87 | 2161 | 2035 | 1884 | 2066 | 2119 | 2082 | 2004 | 1934 | 2014 | 2318 | 2490 | 2457 | 25564 |
| % Change | 3 | 1 | 2 | 2 | 8 | 6 | 9 | 3 | -1 | 1 | 4 | 10 | 4 |
| | | | | | | | | | | | | | |
| Industrial | | | | | | | | | | | | | |
| 1987-88 | 4034 | 4039 | 3960 | 3988 | 4017 | 4259 | 4274 | 4092 | 4231 | 4221 | 4146 | 4408 | 49669 |
| 1986-87 | 3633 | 3630 | 3569 | 3600 | 3673 | 3864 | 3984 | 3930 | 3945 | 4044 | 3956 | 4055 | 45883 |
| % Change | 11 | 11 | 11 | 11 | 9 | 10 | 7 | 4 | 7 | 4 | 5 | 9 | 8 |
| | | | | | | | | | | | | | |
| Other | | | | | | | | | | | | | |
| 1987-88 | 455 | 463 | 470 | 500 | 530 | 510 | 517 | 449 | 467 | 503 | 527 | 507 | 5898 |
| 1986-87 | 421 | 424 | 421 | 443 | 454 | 458 | 449 | 430 | 439 | 477 | 510 | 487 | 5413 |
| % Change | 8 | 9 | 12 | 13 | 17 | 11 | 15 | 4 | 6 | 5 | 3 | 4 | 9 |
| | | | | | | | | | | | | | |
| Total | | | | | | | | | | | | | |
| 1987-88 | 9121 | 8680 | 8699 | 9550 | 10481 | 10134 | 9901 | 8939 | 8841 | 9555 | 10452 | 11066 | 115419 |
| 1986-87 | 8444 | 8278 | 8157 | 9032 | 9569 | 9440 | 9180 | 8738 | 8556 | 9353 | 9902 | 10116 | 108765 |
| % Change | 8 | 5 | 7 | 6 | 10 | 7 | 8 | 2 | 3 | 2 | 6 | 9 | 6 |

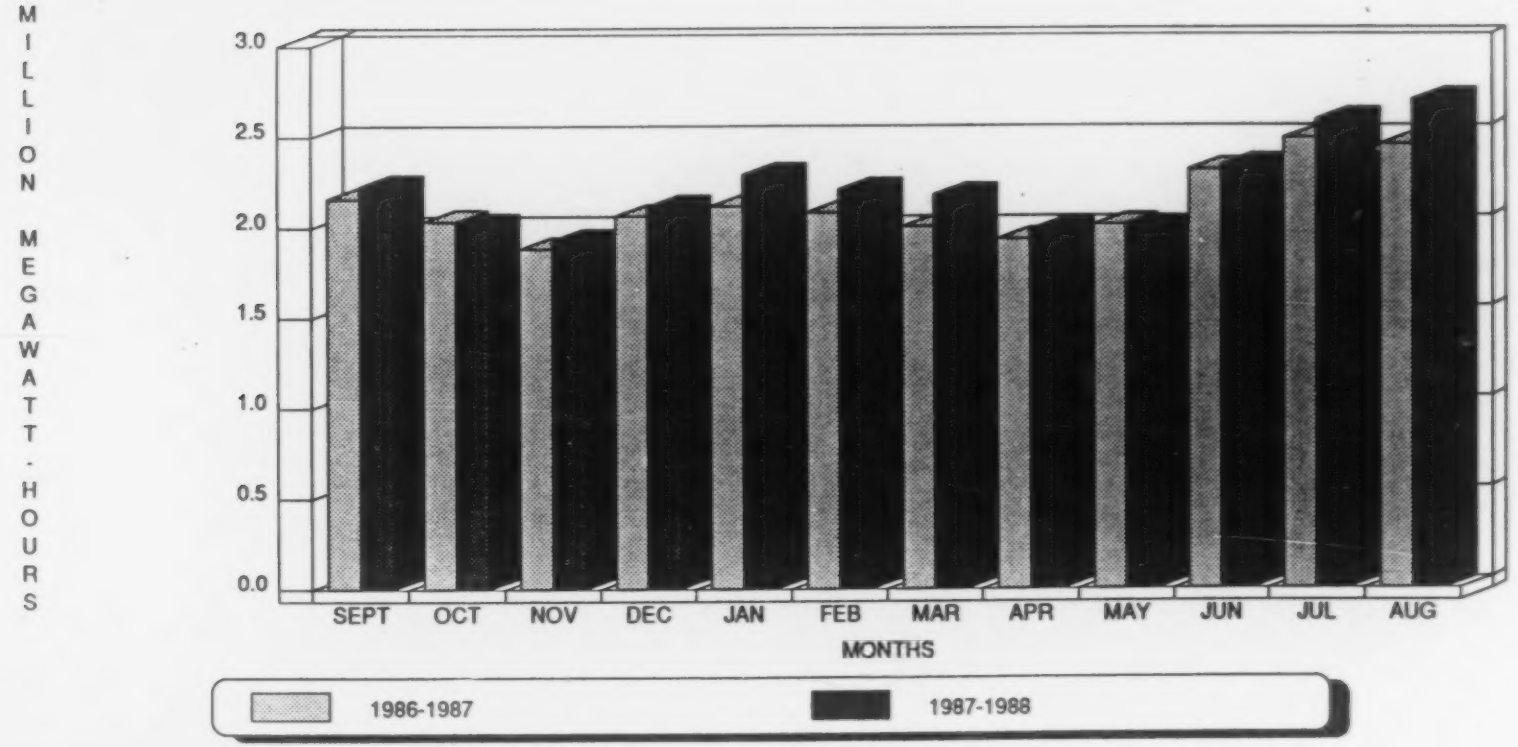
1 Source: The Ohio Electric Utility Institute.

# FIG. 5-A. OHIO RESIDENTIAL ELECTRIC CONSUMPTION 1986 - 1987 VS. 1987 - 1988



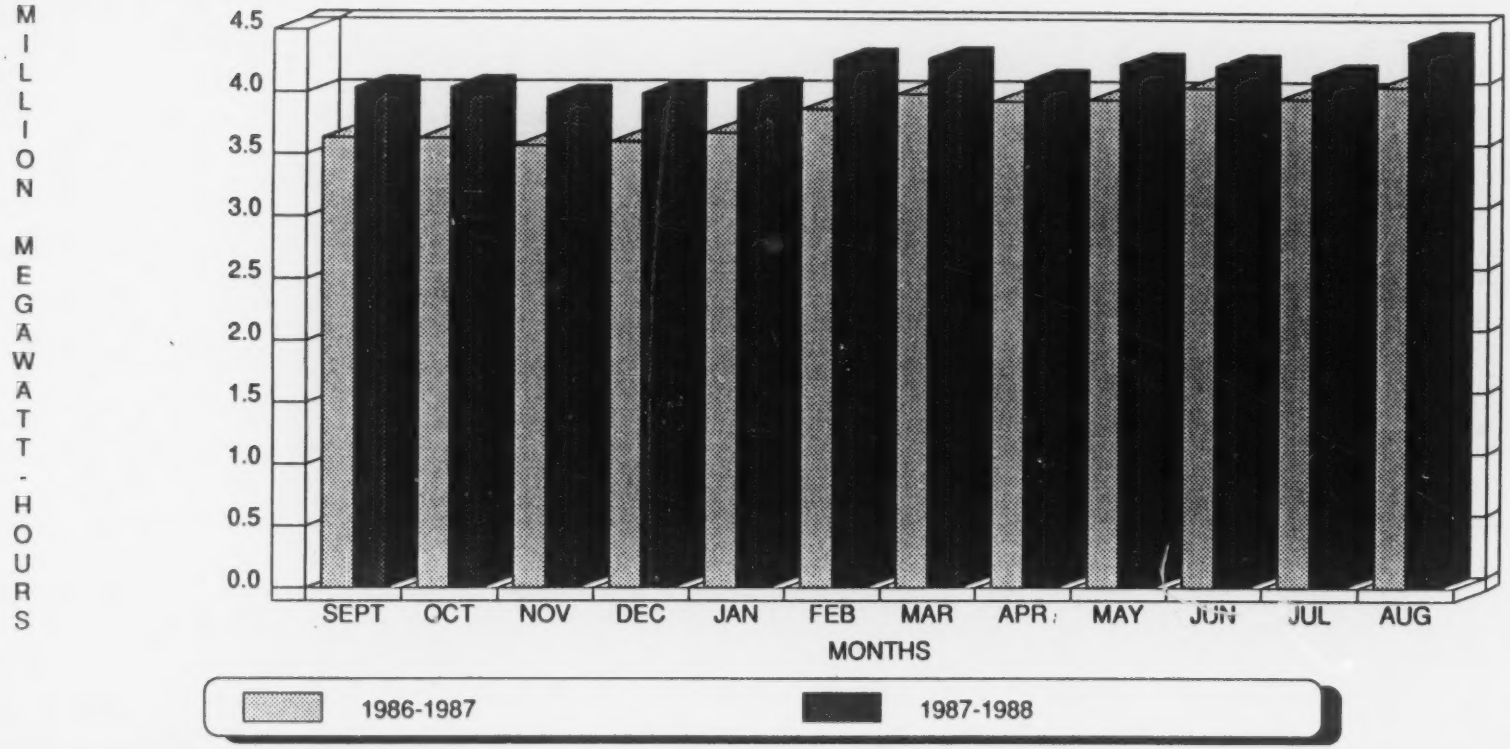

Source: The Ohio Electric Utility Institute.

# FIG. 5-B. OHIO COMMERCIAL ELECTRIC CONSUMPTION 1986 - 1987 VS. 1987 - 1988



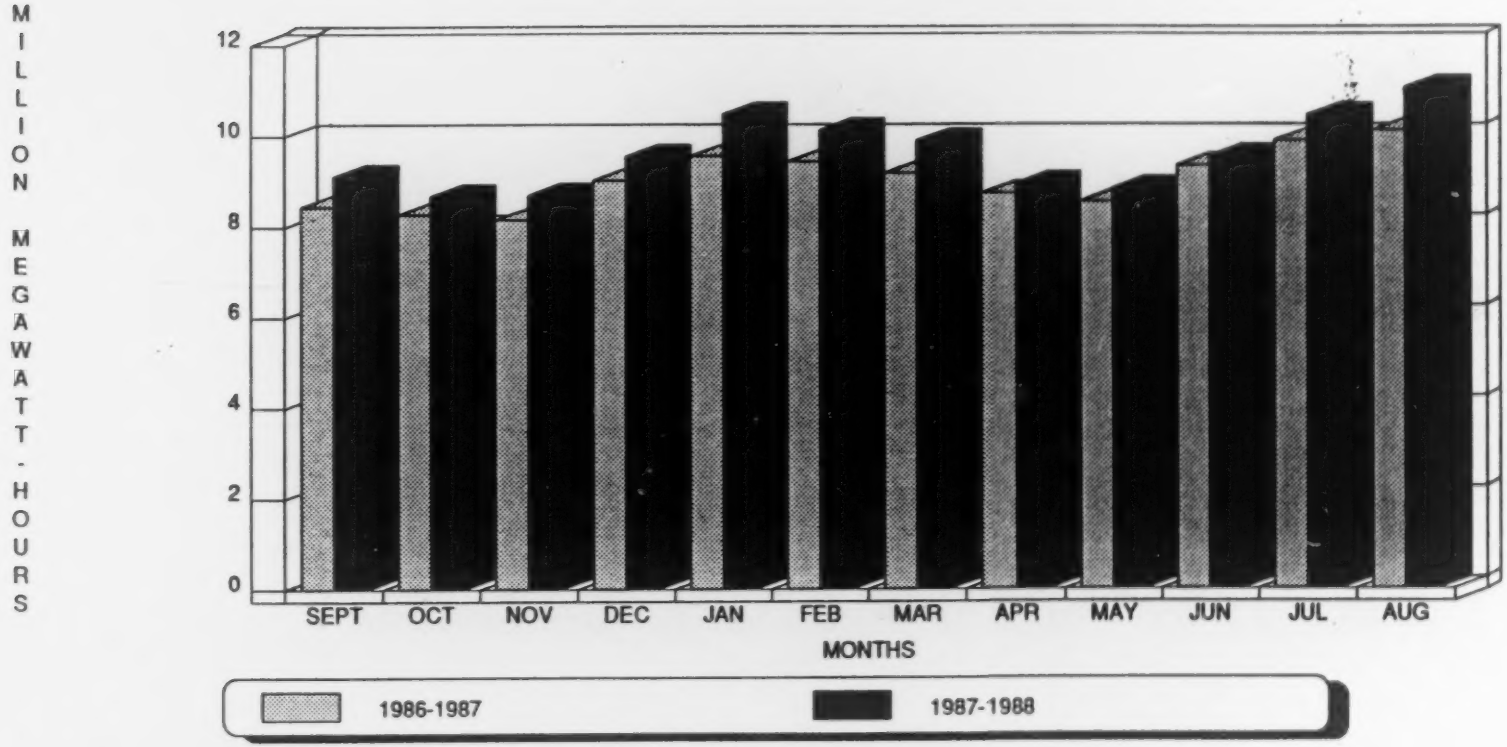

Source: The Ohio Electric Utility Institute.

# FIG. 5-C. OHIO INDUSTRIAL ELECTRIC CONSUMPTION 1986 - 1987 VS. 1987 - 1988




Source: The Ohio Electric Utility Institute.

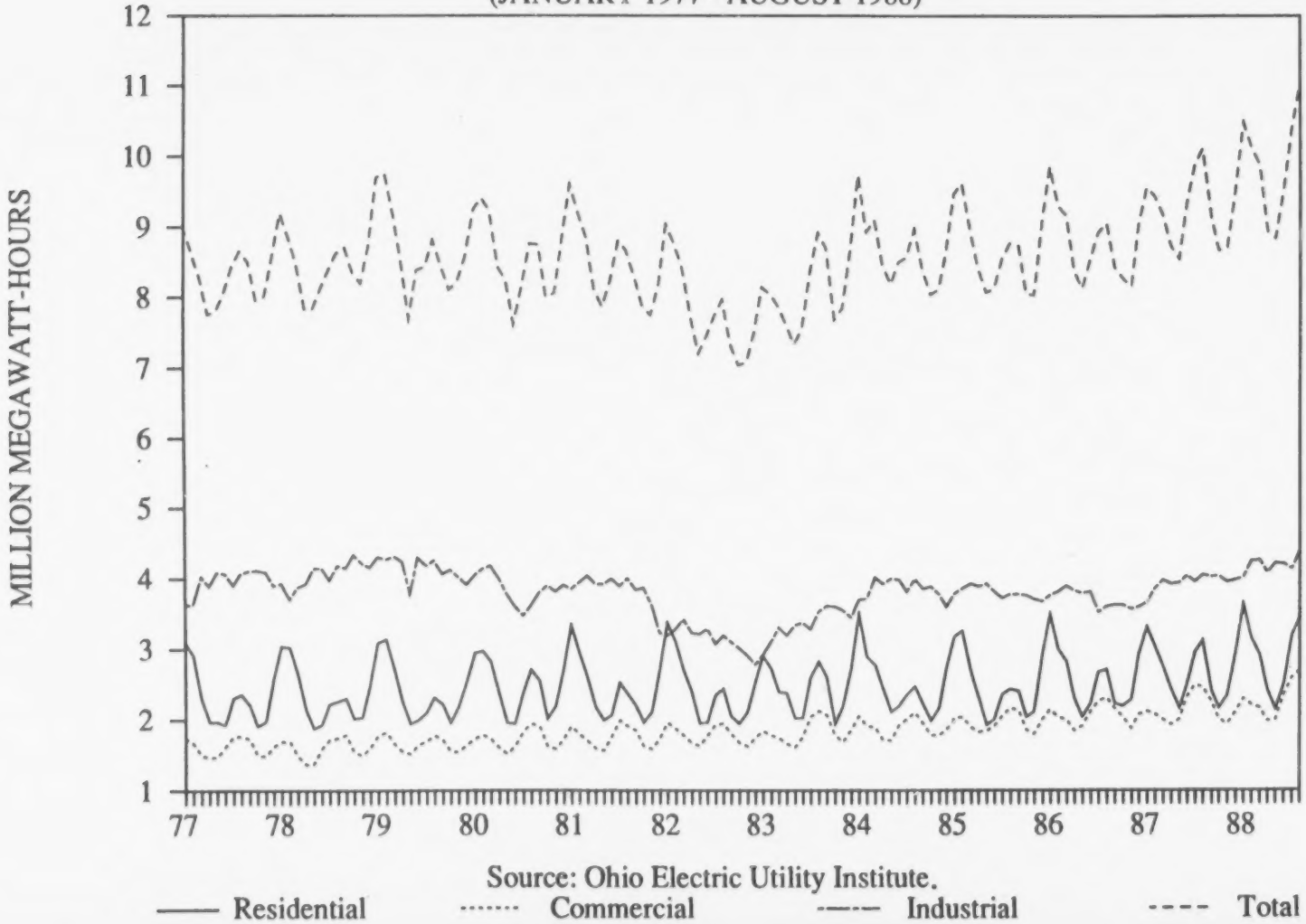
# FIG. 5-D. OHIO TOTAL ELECTRIC CONSUMPTION 1986 - 1987 VS. 1987 - 1988




Source: The Ohio Electric Utility Institute.

# FIG. 5-E. MONTHLY ELECTRICITY CONSUMPTION

(JANUARY 1977 - AUGUST 1988)



## Table 7-A. Ohio Electric Utilities' Projected Deliveries, Consumption, and Stocks of Coal for Electricity Generation[1], 1988-1989 (1000 Short Tons)

| | November | December | January | February | March | April | May | June | July | August | September | October | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Allegheny Power System | | | | | | | | | | | | | |
| Deliveries | 865 | 949 | 1,440 | 1,440 | 1,442 | 1,318 | 1,288 | 1,319 | 1,396 | 1,393 | 1,418 | 1,414 | 15,682 |
| Consumption | 1,371 | 1,508 | 1,564 | 1,398 | 1,452 | 1,304 | 1,326 | 1,328 | 1,418 | 1,435 | 1,322 | 1,369 | 16,795 |
| Stocks | 2,023 | 1,464 | 1,340 | 1,382 | 1,372 | 1,386 | 1,348 | 1,339 | 1,317 | 1,275 | 1,371 | 1,416 | |
| Buckeye Power Inc. | | | | | | | | | | | | | |
| Deliveries | 144 | 160 | 171 | 160 | 166 | 190 | 196 | 197 | 136 | 190 | 182 | 187 | 2,079 |
| Consumption | 177 | 178 | 194 | 175 | 181 | 123 | 121 | 183 | 126 | 129 | 129 | 119 | 1,835 |
| Stocks | 267 | 249 | 226 | 211 | 196 | 263 | 338 | 352 | 362 | 423 | 476 | 544 | |
| Cincinnati Gas & Electric | | | | | | | | | | | | | |
| Deliveries | 435 | 540 | 603 | 555 | 531 | 470 | 448 | 447 | 528 | 554 | 574 | 564 | 6,349 |
| Consumption | 435 | 539 | 603 | 554 | 530 | 470 | 448 | 447 | 527 | 555 | 574 | 565 | 6,347 |
| Stocks | 957 | 958 | 958 | 959 | 960 | 960 | 960 | 960 | 961 | 960 | 960 | 959 | |
| Cleveland Electric Ill. | | | | | | | | | | | | | |
| Deliveries | 307 | 306 | 396 | 436 | 452 | 474 | 474 | 386 | 406 | 339 | 343 | 348 | 4,667 |
| Consumption | 307 | 306 | 396 | 436 | 452 | 474 | 474 | 386 | 406 | 339 | 343 | 348 | 4,667 |
| Stocks | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | |
| Dayton Power and Light | | | | | | | | | | | | | |
| Deliveries | 718 | 720 | 832 | 687 | 742 | 643 | 597 | 654 | 715 | 706 | 615 | 624 | 8,253 |
| Consumption | 718 | 720 | 805 | 687 | 742 | 643 | 597 | 654 | 715 | 706 | 615 | 624 | 8,226 |
| Stocks | 1,047 | 1,047 | 1,074 | 1,074 | 1,074 | 1,074 | 1,074 | 1,074 | 1,074 | 1,074 | 1,074 | 1,074 | |
| Ohio Edison | | | | | | | | | | | | | |
| Deliveries | 631 | 620 | 728 | 619 | 750 | 725 | 765 | 678 | 688 | 690 | 673 | 602 | 8,169 |
| Consumption | 638 | 629 | 699 | 604 | 750 | 724 | 768 | 679 | 689 | 691 | 672 | 603 | 8,146 |
| Stocks | 1,153 | 1,144 | 1,173 | 1,188 | 1,188 | 1,189 | 1,186 | 1,185 | 1,184 | 1,183 | 1,184 | 1,183 | |
| Ohio Valley Electric Corp. | | | | | | | | | | | | | |
| Deliveries | 853 | 696 | 627 | 541 | 549 | 505 | 599 | 737 | 806 | 659 | 591 | 628 | 7,791 |
| Consumption | 674 | 635 | 610 | 560 | 602 | 574 | 611 | 622 | 657 | 659 | 591 | 628 | 7,423 |
| Stocks | 1,425 | 1,486 | 1,503 | 1,484 | 1,431 | 1,362 | 1,350 | 1,465 | 1,614 | 1,614 | 1,614 | 1,614 | |
| Toledo Edison | | | | | | | | | | | | | |
| Deliveries | 74 | 110 | 102 | 101 | 121 | 117 | 107 | 98 | 89 | 91 | 89 | 79 | 1,178 |
| Consumption | 74 | 110 | 103 | 106 | 123 | 128 | 123 | 98 | 89 | 93 | 94 | 89 | 1,230 |
| Stocks | 269 | 269 | 268 | 263 | 261 | 250 | 234 | 234 | 234 | 232 | 227 | 217 | |

1 Source: ODOE Form SE-3.

## Table 7-B. Ohio Electric Utilities' Projected Deliveries, Consumption, and Stocks of Oil for Electricity Consumption[1], 1988-1989 (1000 Bbls)

| | November | December | January | February | March | April | May | June | July | August | September | October | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Allegheny Power System | | | | | | | | | | | | | |
| Deliveries | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Consumption | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stocks | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 1560 |
| American Electric Power | | | | | | | | | | | | | |
| Deliveries | 47 | 59 | 59 | 53 | 50 | 44 | 46 | 49 | 52 | 43 | 61 | 48 | 611 |
| Consumption | 47 | 59 | 59 | 53 | 50 | 44 | 46 | 49 | 52 | 43 | 61 | 48 | 611 |
| Stocks | 259 | 259 | 259 | 259 | 259 | 259 | 259 | 259 | 259 | 259 | 259 | 259 | 3108 |
| Buckeye Power System | | | | | | | | | | | | | |
| Deliveries | 2 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 3 | 2 | 2 | 29 |
| Consumption | 2 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 3 | 2 | 2 | 29 |
| Stocks | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 144 |
| Cincinnati Gas and Electric | | | | | | | | | | | | | |
| Deliveries | 8 | 10 | 20 | 20 | 58 | 16 | 8 | 8 | 8 | 10 | 20 | 60 | 246 |
| Consumption | 7 | 7 | 23 | 17 | 60 | 17 | 6 | 4 | 13 | 13 | 22 | 59 | 248 |
| Stocks | 73 | 76 | 73 | 76 | 74 | 73 | 75 | 79 | 74 | 71 | 69 | 70 | 883 |
| Cleveland Electric Ill. | | | | | | | | | | | | | |
| Deliveries | 31 | 27 | 10 | 17 | 15 | 21 | 18 | 10 | 9 | 13 | 11 | 10 | 192 |
| Consumption | 31 | 27 | 10 | 17 | 15 | 21 | 18 | 10 | 9 | 13 | 11 | 10 | 192 |
| Stocks | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 1632 |
| Dayton Power and Light | | | | | | | | | | | | | |
| Deliveries | 1 | 1 | 1 | 1 | 14 | 2 | 2 | 1 | 1 | 3 | 11 | 1 | 39 |
| Consumption | 3 | 2 | 7 | 3 | 4 | 4 | 3 | 2 | 5 | 3 | 2 | 7 | 45 |
| Stocks | 255 | 254 | 248 | 246 | 256 | 254 | 253 | 252 | 248 | 248 | 257 | 251 | 2774 |
| Ohio Edison | | | | | | | | | | | | | |
| Deliveries | 5 | 7 | 5 | 3 | 9 | 5 | 5 | 6 | 10 | 11 | 3 | 3 | 72 |
| Consumption | 5 | 7 | 5 | 3 | 9 | 5 | 5 | 6 | 10 | 11 | 3 | 3 | 72 |
| Stocks | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 456 |
| Ohio Valley Electric Corp. | | | | | | | | | | | | | |
| Deliveries | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 24 |
| Consumption | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 24 |
| Stocks | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 72 |
| Toledo Edison | | | | | | | | | | | | | |
| Deliveries | 8 | 8 | 2 | 4 | 3 | 7 | 8 | 2 | 2 | 3 | 2 | 2 | 51 |
| Consumption | 8 | 8 | 2 | 4 | 3 | 7 | 8 | 2 | 2 | 3 | 2 | 2 | 51 |
| Stocks | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 72 |

1 Source: ODOE Form SE-3.

## Table 7-C. Electric Utilities' Generation Forecast, Fuel Assessment and Inventory Model[1] (November 1988 - October 1989)

| | November | December | January | February | March | April | May | June | July | August | September | October | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Allegheny Power System | | | | | | | | | | | | | |
| DEMAND FORECAST (GWH) EST DEMAND GEN BY COAL | 3551 | 3897 | 4047 | 3627 | 3770 | 3418 | 3437 | 3426 | 3642 | 3690 | 3406 | 3533 | 43444 |
| PROJ DAILY CONSUMPTION COAL (1000 TONS) | 46 | 49 | 50 | 50 | 47 | 43 | 43 | 44 | 46 | 46 | 44 | 44 | |
| COAL DELIVERIES IN 1000 TONS | 865 | 949 | 1440 | 1440 | 1442 | 1318 | 1288 | 1319 | 1396 | 1393 | 1418 | 1414 | 15682 |
| END OF MONTH STOCK COAL (1000 TONS) | 2023 | 1464 | 1340 | 1382 | 1372 | 1386 | 1348 | 1339 | 1317 | 1275 | 1371 | 1416 | |
| NUMBER OF DAYS SUPPLY COAL | 44 | 30 | 27 | 28 | 29 | 32 | 32 | 30 | 29 | 28 | 31 | 32 | |
| American Electric Power System | | | | | | | | | | | | | |
| DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL | 8023 | 9076 | 9954 | 8393 | 8313 | 7174 | 7544 | 8183 | 8400 | 8311 | 7342 | 7229 | 97942 |
| PROJ DAILY CONSUMPTION COAL (1000 TONS) | 114 | 125 | 138 | 129 | 117 | 101 | 103 | 117 | 118 | 117 | 109 | 105 | |
| COAL DELIVERIES IN 1000 TONS | 3148 | 3171 | 3291 | 3140 | 3353 | 3283 | 3396 | 3141 | 3094 | 3785 | 3706 | 3733 | 40241 |
| END OF MONTH STOCK COAL (1000 TONS) | 9557 | 8839 | 7863 | 7387 | 7123 | 7391 | 7587 | 7217 | 6655 | 6816 | 7247 | 7717 | |
| NUMBER OF DAYS SUPPLY COAL | 84 | 70 | 57 | 57 | 61 | 74 | 73 | 62 | 56 | 58 | 66 | 73 | |

1 Source: ODOE Form SE-3.

## Table 7-C. Electric Utilities' Generation Forecast, Fuel Assessment and Inventory Model[2] (November 1988 - October 1989)

| | November | December | January | February | March | April | May | June | July | August | September | October | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cincinnati Gas & Electric Company | | | | | | | | | | | | | |
| DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL | 986 | 1240 | 1375 | 1259 | 1211 | 1079 | 999 | 991 | 1186 | 1253 | 1302 | 1261 | 14142 |
| PROJ DAILY CONSUMPTION COAL (1000 TONS) | 15 | 17 | 19 | 20 | 17 | 16 | 14 | 15 | 17 | 18 | 19 | 18 | |
| COAL DELIVERIES IN 1000 TONS | 435 | 540 | 603 | 555 | 531 | 470 | 448 | 447 | 528 | 554 | 574 | 564 | 6249 |
| END OF MONTH STOCK COAL (1000 TONS) | 957 | 958 | 958 | 959 | 960 | 960 | 960 | 960 | 961 | 960 | 960 | 959 | |
| NUMBER OF DAYS SUPPLY COAL | 66 | 55 | 49 | 48 | 56 | 61 | 66 | 64 | 57 | 54 | 50 | 53 | |
| Cleveland Electric Illuminating Company | | | | | | | | | | | | | |
| DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL | 719 | 699 | 905 | 1013 | 1052 | 1118 | 1116 | 884 | 930 | 755 | 782 | 798 | 10771 |
| PROJ DAILY CONSUMPTION COAL (1000 TONS) | 10 | 10 | 13 | 16 | 15 | 16 | 15 | 13 | 13 | 11 | 11 | 11 | |
| COAL DELIVERIES IN 1000 TONS | 307 | 306 | 396 | 436 | 452 | 474 | 474 | 386 | 406 | 339 | 343 | 348 | 4667 |
| END OF MONTH STOCK COAL (1000 TONS) | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | |
| NUMBER OF DAYS SUPPLY COAL | 59 | 61 | 47 | 39 | 41 | 38 | 39 | 47 | 46 | 55 | 53 | 54 | |

2 Source: ODOE Form SE-3.

## Table 7-C. Electric Utilities' Generation Forecast, Fuel Assessment and Inventory Model[3] (November 1988 - October 1989)

| | November | December | January | February | March | April | May | June | July | August | September | October | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dayton Power & Light Company | | | | | | | | | | | | | |
| DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL | 1724 | 1723 | 1948 | 1656 | 1791 | 1557 | 1430 | 1565 | 1712 | 1695 | 1464 | 1499 | 19764 |
| PROJ DAILY CONSUMPTION COAL (1000 TONS) | 24 | 23 | 26 | 25 | 24 | 21 | 19 | 22 | 23 | 23 | 21 | 20 | |
| COAL DELIVERIES IN 1000 TONS | 718 | 720 | 832 | 687 | 742 | 643 | 597 | 654 | 715 | 706 | 615 | 624 | 8253 |
| END OF MONTH STOCK COAL (1000 TONS) | 1047 | 1047 | 1074 | 1074 | 1074 | 1074 | 1074 | 1074 | 1074 | 1074 | 1074 | 1074 | |
| NUMBER OF DAYS SUPPLY COAL | 44 | 45 | 41 | 44 | 45 | 50 | 56 | 49 | 47 | 47 | 52 | 53 | |
| Ohio Edison System | | | | | | | | | | | | | |
| DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL | 1489 | 1455 | 1618 | 1398 | 1720 | 1649 | 1761 | 1570 | 1576 | 1583 | 1562 | 1381 | 18762 |
| PROJ DAILY CONSUMPTION COAL (1000 TONS) | 21 | 20 | 23 | 22 | 24 | 24 | 25 | 23 | 22 | 22 | 22 | 19 | |
| COAL DELIVERIES IN 1000 TONS | 631 | 620 | 728 | 619 | 750 | 725 | 765 | 678 | 688 | 690 | 673 | 602 | 8169 |
| END OF MONTH STOCK COAL (1000 TONS) | 1153 | 1144 | 1173 | 1188 | 1188 | 1189 | 1186 | 1185 | 1184 | 1183 | 1184 | 1183 | |
| NUMBER OF DAYS SUPPLY COAL | 54 | 56 | 52 | 55 | 49 | 49 | 48 | 52 | 53 | 53 | 53 | 61 | |



3 Source: ODOE Form SE-3.

## Table 7-C. Electric Utilities' Generation Forecast, Fuel Assessment and Inventory Model[4] (November 1988 - October 1989)

| | November | December | January | February | March | April | May | June | July | August | September | October | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ohio Valley Electric Corporation | | | | | | | | | | | | | |
| DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL | 1598 | 1536 | 1470 | 1351 | 1466 | 1383 | 1464 | 1500 | 1530 | 1524 | 1387 | 1493 | 17702 |
| PROJ DAILY CONSUMPTION COAL (1000 TONS) | 22 | 20 | 20 | 20 | 19 | 19 | 20 | 21 | 21 | 21 | 20 | 20 | |
| COAL DELIVERIES IN 1000 TONS | 853 | 696 | 627 | 541 | 549 | 505 | 599 | 737 | 806 | 659 | 591 | 628 | 7791 |
| END OF MONTH STOCK COAL (1000 TONS) | 1425 | 1486 | 1503 | 1484 | 1431 | 1362 | 1350 | 1465 | 1614 | 1614 | 1614 | 1614 | |
| NUMBER OF DAYS SUPPLY COAL | 63 | 73 | 76 | 74 | 74 | 71 | 68 | 71 | 76 | 76 | 82 | 80 | |
| Toledo Edison System | | | | | | | | | | | | | |
| DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL | 195 | 289 | 284 | 296 | 334 | 344 | 330 | 264 | 238 | 250 | 252 | 238 | 3314 |
| PROJ DAILY CONSUMPTION COAL (1000 TONS) | 2 | 4 | 3 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | |
| COAL DELIVERIES IN 1000 TONS | 74 | 110 | 102 | 101 | 121 | 117 | 107 | 98 | 89 | 91 | 89 | 79 | 1178 |
| END OF MONTH STOCK COAL (1000 TONS) | 269 | 269 | 263 | 263 | 261 | 250 | 234 | 234 | 234 | 232 | 227 | 217 | |
| NUMBER OF DAYS SUPPLY COAL | 109 | 76 | 81 | 69 | 66 | 59 | 59 | 72 | 82 | 77 | 72 | 76 | |

4 Source: ODOE Form SE-3.

# 3 NATURAL GAS

Natural gas distribution companies operating in Ohio are classified into two categories with respect to their reporting requirements. Eight major companies, Cincinnati Gas and Electric, Columbia Gas of Ohio, Dayton Power and Light, East Ohio Gas, National Gas and Oil, Ohio Gas, River Gas, and West Ohio Gas, report to the PUCO, Division of Forecasting and Siting every month. Eighteen small utilities and two municipal utilities report twice a year. This section is based upon the most recent reports of these utilities.

## 3.1 Supplies and Distribution

### 3.1.1 Sources of Supply

The major sources of natural gas supplies to the State of Ohio are presented in Table 8, and the quantities supplied are shown graphically in Figure 6. Table 9 presents the total natural gas requirements of each of the Ohio utilities and the State total.

From September 1987 through August 1988, the eight major gas distribution companies of Ohio, which together accounted for 98.52 percent of the reported natural gas distribution in the State, procured 600,545 MMCF of natural gas to meet Ohio's requirements. This represents a 5.13 percent increase in the procurement of natural gas to Ohio compared to the same period in the previous twelve months. This increase in procurement was due to a combination of slightly cooler weather conditions during the winter heating season, increased economic activity, and lower prices for natural gas.

Of the 600,545 MMCF of natural gas procured by these companies, interstate gas purchases and synthetic natural gas (SNG) comprised 90.61 percent. Purchases of Ohio gas comprised the remaining 9.39 percent of the total. The 56,393 MMCF of Ohio production of natural gas purchased by the eight major gas utilities from September 1987 through August 1988 represents a 6.64 percent decrease in their purchases of Ohio's product from the preceding annual period. This amount corresponds to approximately 33.85 percent of the State's total production of 166,593 MMCF in calendar year 1987. Most of the remainder of Ohio

natural gas production was transported directly to industrial end-users under the industrial self-help programs instituted by the PUCO in 1974.

Domestic interstate gas is the major source of supply for Ohio. Columbia Gas Transmission Corporation and Consolidated Gas Supply Corporation provided 39.55 percent of the natural gas supplied to the eight major Ohio gas distribution companies from September 1987 through August 1988.

### 3.1.2 Distribution

Service shares of the gas distribution companies operating in Ohio are presented in Table 9 for the annual period September 1987 through August 1988. During this period, the four large distribution companies - Cincinnati Gas and Electric, Columbia Gas of Ohio, Dayton Power and Light and East Ohio Gas - jointly distributed 94.39 percent of the reported natural gas requirements of the State. The four intermediate sized companies - National Gas and Oil, Ohio Gas, River Gas and West Ohio Gas - distributed an additional 4.13 percent. The remaining 1.48 percent of the reported natural gas requirements were distributed by 18 small utilities and two municipal utilities. Total requirements of 609,531 MMCF reported in Table 9 represents an increase of approximately 4.75 percent in the distribution of natural gas compared to the same period last year.

The behavior of monthly sectoral requirements between September 1987 and August 1988 versus the preceding annual period are comparatively presented in Figures 7-A through 7-C. As these Figures illustrate, residential sector requirements increased 6.0 percent, commercial sector requirements increased 4.6 percent, and industrial sector requirements decreased 5.0 percent (this does not include industrial requirements met through the self-help program or other direct purchases by industrial end-users, i.e. non-tariff sales). Figure 7-D combines the three sectors to comprise the total consumption for the State which, as mentioned above, increased 5.13 percent from the previous year. Figure 7-E reveals the monthly relationship of each sector to the total requirement trend, from January 1978 through August 1988.

## 3.2 Historical Behavior of Interstate Natural Gas Supplies and Sectoral End-Use Requirements

### 3.2.1 Interstate Natural Gas Supplies

Until 1978, well head prices paid by interstate transmission companies to natural gas producers were under federal control. Starting in the early seventies, and especially after the OPEC oil price increase of 1973, the federally regulated gas supply prices for interstate commerce lagged behind the unregulated prices which the product commanded at the well head for intrastate commerce. Consequently, there were supply shortages in the interstate natural gas markets during the heating season, whereas producing States such as Texas and Louisiana experienced an overabundance of supplies at all times.

In Ohio, which was about 90 percent dependent on interstate gas, a ban was imposed upon new customer hook-ups in 1972 and remained in effect until 1978. Similarly, base allocations of lower priority industrial and commercial customers were curtailed between 1973 and 1978. During the winter of 1976-1977, many interstate pipeline companies had to heavily curtail base allocations of their industrial customers due to lack of interstate gas supplies.

The Natural Gas Policy Act (NGPA) of 1978, deregulated some gas prices immediately, and legislated a phased decontrol of prices for many categories of natural gas by 1985. Pursuant to the passage of the NGPA, relatively unfettered increases in interstate gas prices have stimulated new and more costly gas production from deep wells, thus increasing available supplies. However, many pipeline companies overreacted to market conditions by entering into extensive take or pay contracts for the newly found and expensive deep gas reserves.

Increasing energy prices from 1972 induced intensive conservation efforts on the part of consumers, as well as many state, federal and private agencies. As a result of these price induced conservation efforts, per customer consumption in general, and per customer natural gas consumption in particular, have declined almost continuously since 1972-1973. With the additional unfettered increases in natural gas costs of interstate pipeline companies between 1978-1982, the price of natural gas supplied by them rose well above the market equilibrium level dictated

by the prevailing per customer demands and the enhanced availability of supplies.

This situation led to the development of a spot market for natural gas, where the price for large volume purchases was substantially lower than the price that interstate natural gas companies could offer due to their take or pay costs which required payment regardless of whether or not they actually distributed the gas. Consequently, increasing numbers of industrial customers obtained their requirements through direct purchases at the well head or through the spot market. The interstate pipelines and natural gas distribution utilities are being increasingly relegated to the position of common carriers of the natural gas of others. Recent FERC rulings have been supportive of this opening up of a regulated market to competitive pressures.

Since 1983, declining per customer requirements, enhanced supplies, and the thriving spot market have induced a downturn in natural gas prices to end-users in all sectors

### 3.2.2 Annual Sectoral End-Use Requirements

Long-term trends in annual sectoral natural gas prices and sectoral natural gas requirements for Ohio are presented in Tables 10 and 11, and Appendix B, Figures B-5 through B-8. It is clear from these figures that the dynamic behavior of natural gas markets in Ohio have been characterized by increasing price trends from 1973 to 1983 and declining requirement trends since 1973.

As discussed in the preceding section, between 1970 and 1983, in response to a series of worldwide price shocks including the OPEC oil price increases of 1973 and 1978, the price of natural gas in Ohio increased nearly sevenfold in the residential and commercial sectors, and ninefold in the industrial sector (see Table 10). These price increases far exceeded the increase in the rate of inflation (see Table 11), or the rate of increase of the gross state product. Such significant and sustained increases in sectoral prices have induced significant and sustained conservation efforts among sectoral customers, which in turn have been translated into declining sectoral requirement trends.

In recent years industrial non-tariff sales, such as self-help procurements, have come to account for an ever increasing share of the total industrial requirement in

Ohio (see Table 15). This is due to the fact that non-tariff sales prices are determined in the spot market and are lower than the regulated prices for industrial tariff sales. The latter category of sales must reflect fully the fixed and variable costs of gas procurement and distribution, including take or pay contract costs and distribution company revenue requirements.

It should be noted, however, that the declining trends in industrial sector requirements represent not only the net outcomes of price induced energy conservation and fuel switching programs, but also a permanent loss in industrial capacity, especially in the older and more energy intensive manufacturing industries in Ohio.

### 3.2.3 Monthly Sectoral End-Use Requirements

The monthly time series behavior of residential, commercial, industrial and total natural gas requirements in Ohio from January 1977 through October 1988, along with the Division's independent forecasts for November 1988 through October 1989 are displayed in Appendix B, Figures B-1 through B-4. The seasonal variations in residential and commercial requirements can easily be discerned from these Figures as natural gas is the primary source of space heating in Ohio. Demand peaks in all sectors during the heating season and falls off during the cooling season.

## 3.3 Utility Forecasts: Consolidated Results and Twelve Month Outlook

### 3.3.1 Consolidated Results

Aggregate supply and demand projections of the eight major utilities, as presented in Table 12 and Figure 8, indicate a 0.0 percent annual shortage of natural gas supplies over requirements. All eight utilities project supply to be exactly equal to requirements during the 1988-1989 heating season. Supply and demand projections of the individual utilities, as submitted in their "Monthly Reports of Supply and Demand of Natural Gas", are summarized in Appendix B, Table B-9.

Table 13 shows the actual aggregate monthly sectoral requirements for the eight major utilities from September 1987 through August 1988, along with the utility companies' consolidated projections for the September 1988 through August 1989 period. The companies consolidated forecast, interestingly, projects decreases in demand for the residential, commercial and industrial sectors. Figure 9 is a graphic presentation of the utilities' consolidated sectoral projections for the forecast period. Overall, the consolidated companies' forecast of total annual gas requirements shows a decrease of 1.4 percent relative to the same twelve month period last year.

Actual and company forecast aggregate supply of natural gas by source is displayed in Table 14. Delivered product from all pipeline sources is expected to decrease 1.4 percent over the previous twelve month period. The majority of this supply, roughly 90.7 percent, will continue to come from out-of-state sources. Columbia Gas Transmission Corporation, traditionally the largest supplier to the State, is projected to supply 6.25 percent of natural gas demand, while Consolidated Natural Gas is projected to supply 10.8 percent.

### 3.3.2 Twelve Month Outlook

On the basis of the utility companies' natural gas supply and sectoral requirement projections, the outlook for the next twelve months indicates no supply shortages in Ohio, under both normal and 10 percent colder than normal weather conditions.

The PUCO, Division of Forecasting and Siting will be monitoring developments in the supplies and requirements of natural gas throughout the rest of the year and will take appropriate action if a critical situation develops. However, the Division of Forecasting and Siting's current conclusion is that prevailing conditions portend no shortages or curtailments of natural gas during the 1988-1989 heating season.

## 3.4 Division of Forecasting & Siting Independent Forecast

### 3.4.1 Methodology

The independent natural gas demand forecast prepared by the Division of Forecasting and Siting for the eight major gas utilities serving Ohio are based upon time series analyses of sectoral requirements for each individual month of the year, between January 1970 and August 1988, adjusted for long-term annual trends, severe climatic conditions and the business cycle.

Time series models, with adjustments, yield projections that possess better statistical properties, and are at least as accurate as alternative short-term forecasting techniques. They also offer the added flexibility of being able to produce updated forecasts which reflect and incorporate specific assumptions pertaining to the prevailing climatic and economic conditions every time the most recent actual monthly requirements are reported to the PUCO, Division of Forecasting and Siting. The utilization of an adjusted time series methodology is designed to provide a double check, thus reducing forecasting error for a more accurate and decisive diagnosis of energy requirements of the State.

### 3.4.2 Special Assumptions

The economic recovery experienced by Ohio is expected to level off throughout the forecasting horizon, with the unemployment rate remaining between 5.5 and 6.5 percent. Inflation is expected to hover between 4.5 and 5.5 percent, and the trend in natural gas prices will begin stabilizing at slightly below the current rate.

FERC order RM85-1, which allows greater access to competitively priced gas available on the spot market, will further diminish the volume of natural gas sales to industrial customers by the utilities and increase the volume that is directly purchased by industrial customers from out-of-state sources. However, the long-term total consumption trends in the industrial sector are not expected to change significantly (i.e. the sum of tariff and non-tariff sales).

### 3.4.3 Results

The results obtained on the basis of the Division of Forecasting and Siting's independent forecast of sectoral requirements and the utility companies' forecasts of supplies are presented in Tables 16 through 20, for the 1988-1989 heating season. Summary results presented in Table 16 indicate a potential deficiency of 0.852 percent under normal weather conditions and a potential deficiency of 0.879 percent in the case of a 10 percent colder than normal winter.

The Division of Forecasting and Siting's independent forecasts for the four major utilities are compared with each company's forecast for the period from September 1988 through August 1989 in Appendix B, Tables B-1 through B-4. The Division's forecasts of sectoral end-use gas requirements for Ohio are presented in Appendix B, Tables B-5 through B-8. These have been adjusted for the long-term historical trends observed in sectoral natural gas requirements in the State. Finally, for comparison, Appendix B, Table B-9 displays twelve month forecasts, produced monthly by each utility company and reported to the Division of Forecasting and Siting.

### 3.4.4 Long-Term Outlook

Any unexpected changes in the short-term behavior of residential and commercial requirements would mainly be associated with variations in the severity of the heating season and alterations in the long-term trends followed by natural gas prices. Given the current abundance of natural gas supplies, the deregulation of interstate natural gas prices by the NGPA and recent FERC policies which virtually require many interstate pipeline companies to act as common carriers, no supply induced pressures on natural gas prices for the next 3 to 5 years are expected. Given the price induced conservation efforts since 1972, and the dramatic declines in per customer natural gas consumption in the residential and commercial sectors since 1972, no demand induced pressures are expected for the 3 to 5 year horizon either. Therefore, the decline in real natural gas prices observed since 1983 is expected to begin leveling off during the forecast horizon and stabilize in the near future.

In recent years, as previously explained in section 3.2.1, industrial sales of natural gas by utility companies have decreased substantially. Part of this has been due to conservation, fuel switching and declining activity in the basic industries. Another important factor has been the emergence of the spot market for interstate gas purchases by large volume industrial customers. An increasing portion of this decline has also been the result of self-help programs administered by the PUCO and fuel oil displacement programs administered by the Federal Energy Regulatory Commission (FERC).

The State of Ohio's self-help program was initiated in 1974 to assist industrial customers whose tariff supplies of natural gas were threatened with curtailments. The program permits industrial concerns to purchase their own gas at the well head and have it transported directly to their location by a gas distribution company. Throughout the mid and late 1970's, industrial consumers paid unregulated prices to producers and contracted for delivery with the gas distribution companies, which charged a fee for transmission and were permitted receipt of up to 25 percent of the gas for their own customers.

Self-help gas emerged as a resource vital to the economic development of Ohio. Its cost advantage improves the competitive positions of participating industries. Also, self-help gas provides an additional market for Ohio gas producers and spurs competition in well head burnertip prices. In April 1983, as a result of a natural gas surplus, the PUCO amended the self-help rules to rescind distribution company privileges to acquire ownership shares of self-help gas. The difference in the cost of natural gas purchased through interstate pipeline companies versus the cost of natural gas purchased on the spot market provides the current incentive for industrial customers to purchase their own gas at the well head.

Federally regulated marketing programs became significant in 1983 and have added to the loss of customers mainly in industrial tariffs. Fuel oil displacement, special marketing programs regulated by FERC, and Ohio's self-help program accounted for 77.25 percent of Ohio industrial gas use in 1987. Comparatively, these programs accounted for 66.88 percent of Ohio industrial natural gas use in 1986, 52.56 percent in 1985, and 32.74 percent in 1984.

The effective price discrimination between customer categories which is introduced into the gas market through special marketing programs should help Ohio's

industry by making it possible for firms to take advantage of available input cost minimization opportunities. However, it also implies that a greater proportion of fixed costs involved in the procurement and distribution of natural gas will have to be born by industrial tariff customers, whose ranks may virtually disappear in the next decade if present trends continue. Therefore, the totality of these fixed costs may eventually be passed on to residential and commercial customers who may lack the ability to participate in these programs due to information costs, contract costs, or minimum volume requirements. The growth in non-tariff industrial sales in Ohio is documented in Table 15.

### 3.4.5 Emergency Response Capability

There have been no natural gas curtailments in Ohio since 1978, and neither Ohio natural gas utilities nor the gas pipeline companies project any curtailments through August 1989. However, in the event of a shortage, it is anticipated that the fuel-switching capability of industrial and large commercial users would be accelerated. Detailed emergency plans that describe strategies to respond to fuel supply shortfalls are on file at the PUCO, Division of Forecasting and Siting.

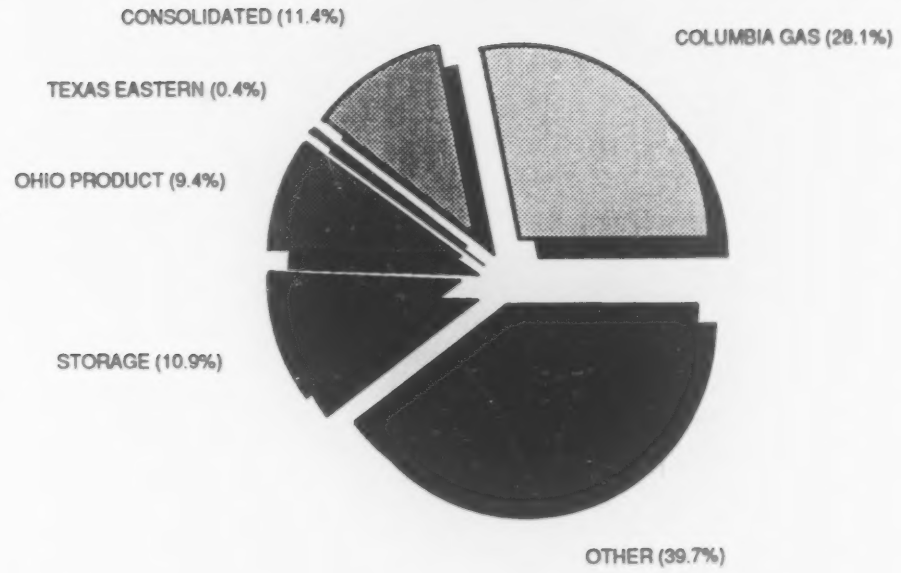
**Table 8. Sources of Natural Gas Supplies to the Eight Major Gas Utilities[1]**
**September 1987 - August 1988**
**(MMCF)**

| | Supply | Percent of Total | Rank |
|---|---|---|---|
| Columbia Gas Transmission Corp. | 168,980 | 28.14 | 2 |
| Consolidated Gas Supply Corp. | 68,515 | 11.41 | 3 |
| Lawrenceburg Gas | 54 | 0.00 | 9 |
| Michigan/Wisconsin Pipeline Co. | 426 | 0.01 | 8 |
| Panhandle Eastern Pipeline Co. | 657 | 0.11 | 7 |
| Tennessee Gas Pipeline Co. | 15 | 0.00 | 9 |
| Texas Eastern Transmission Corp. | 2,615 | 0.44 | 6 |
| Texas Gas Transmission Corp. | 0 | 0.00 | 9 |
| Green Springs (SNG) (Columbia LNG) | 0 | 0.00 | 9 |
| Storage/Propane[2] | 65,541 | 10.91 | 4 |
| Other | 237,349 | 39.52 | 1 |
| Total SNG and Out-of-State | 544,152 | 90.61 | |
| Ohio Product | 56,393 | 9.39 | 5 |
| **TOTAL** | 600,545 | 100.00 | |

1 Source: PUCO Form SG-2.

2 Gas withdrawn from storage represents a source during the period under consideration.

# FIG. 6. SOURCES OF NATURAL GAS SUPPLY FOR EIGHT MAJOR GAS UTILITIES SEPT. 1987 - AUG. 1988




Source: PUCO Form SG-2.

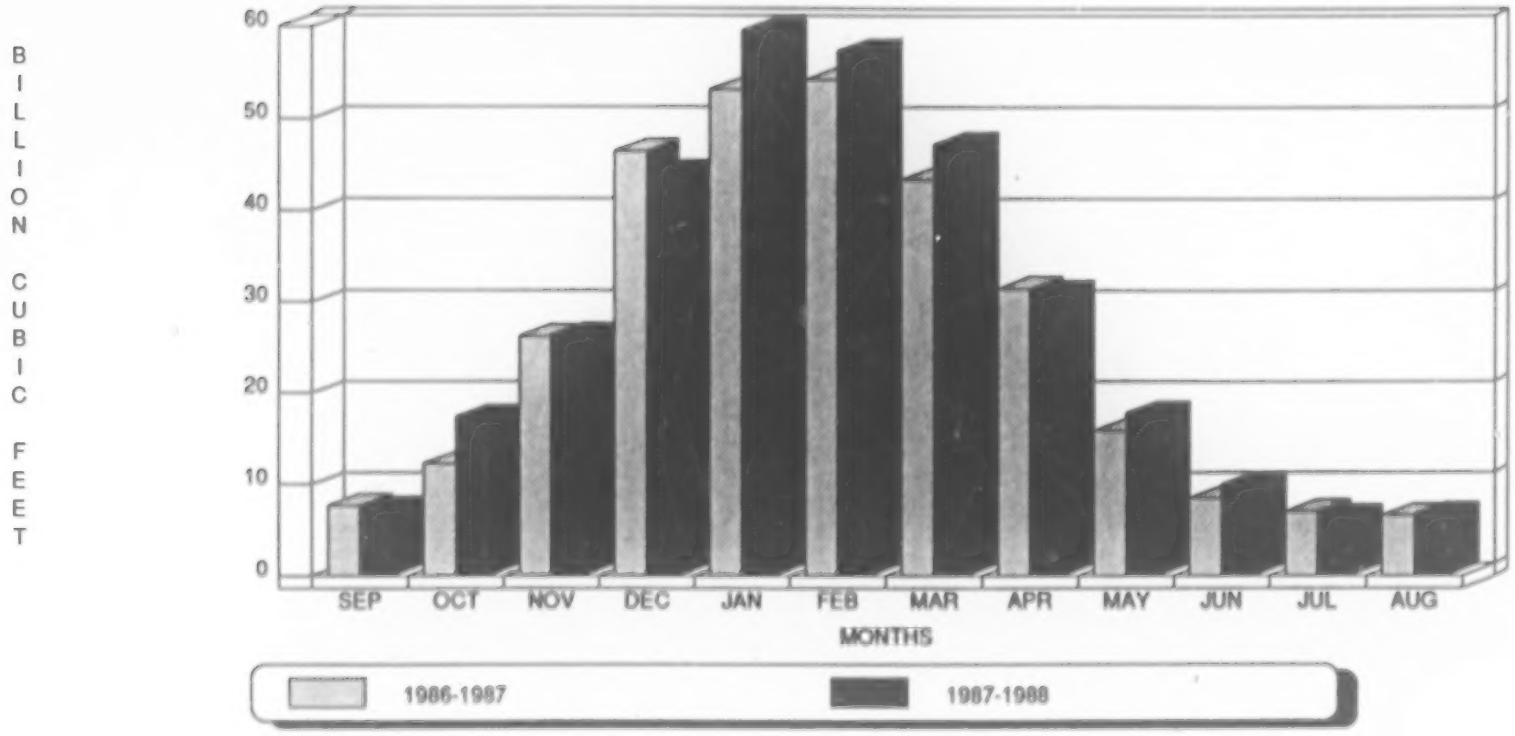
**Table 9. Total Natural Gas Requirements of All Commercial Utilities in Ohio[1]**
**September 1987 through August 1988**
**(MMCF)**

| Company | Sales to All End Users | Storage[2] (In) | Total Requirement (1+2) | Percent of Total Ohio Requirement |
|---|---|---|---|---|
| Cincinnati Gas and Electric Co. | 70,004 | 0 | 70,004 | 11.48 |
| Columbia Gas of Ohio | 185,534 | 0 | 185,534 | 30.44 |
| Dayton Power and Light Co. | 48,488 | 0 | 48,488 | 7.96 |
| East Ohio Gas Co. | 209,049 | 62,250 | 271,299 | 44.51 |
| National Gas and Oil Co. | 3,159 | 732 | 3,891 | 0.64 |
| Ohio Gas Co. | 8,244 | 0 | 8,244 | 1.35 |
| River Gas Co. | 2,761 | 708 | 3,469 | 0.57 |
| West Ohio Gas Co. | 9,550 | 0 | 9,550 | 1.57 |
| Total Eight Major Utilities | 536,789 | 63,690 | 600,479 | 98.52 |
| Total Small Utilities | 5,009 | 0 | 5,009 | 0.82 |
| Municipal Utilities | 4,043 | 0 | 4,043 | 0.66 |
| **TOTAL** | 545,841 | 63,690 | 609,531 | 100.00 |

1 Source: PUCO Form SG-2 and SG-4.

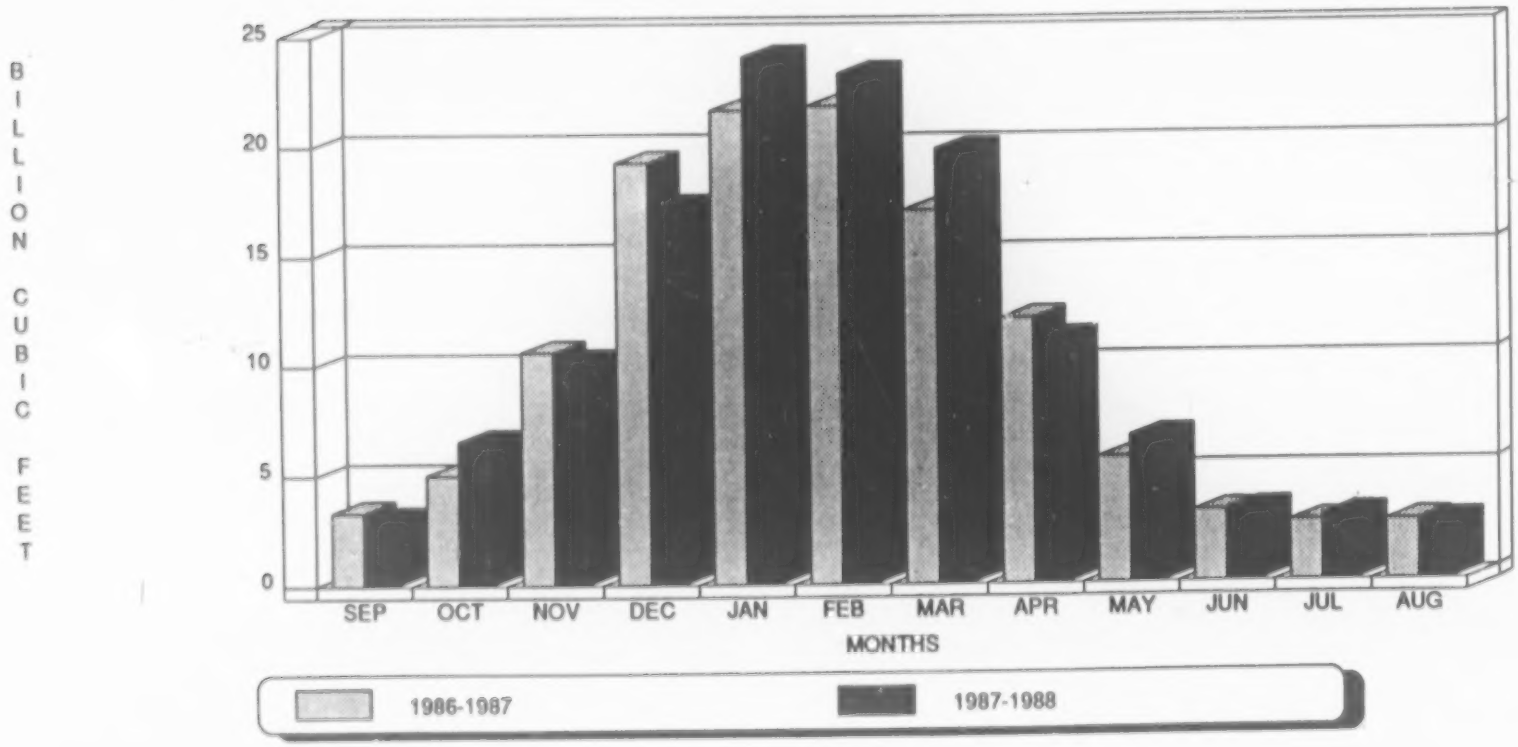
2 Gas restored to storage is a requirement of the State's natural gas utilties.

# FIG. 7-A. OHIO RESIDENTIAL SECTOR NATURAL GAS CONSUMPTION: 1986 - 1987 VS. 1987 - 1988



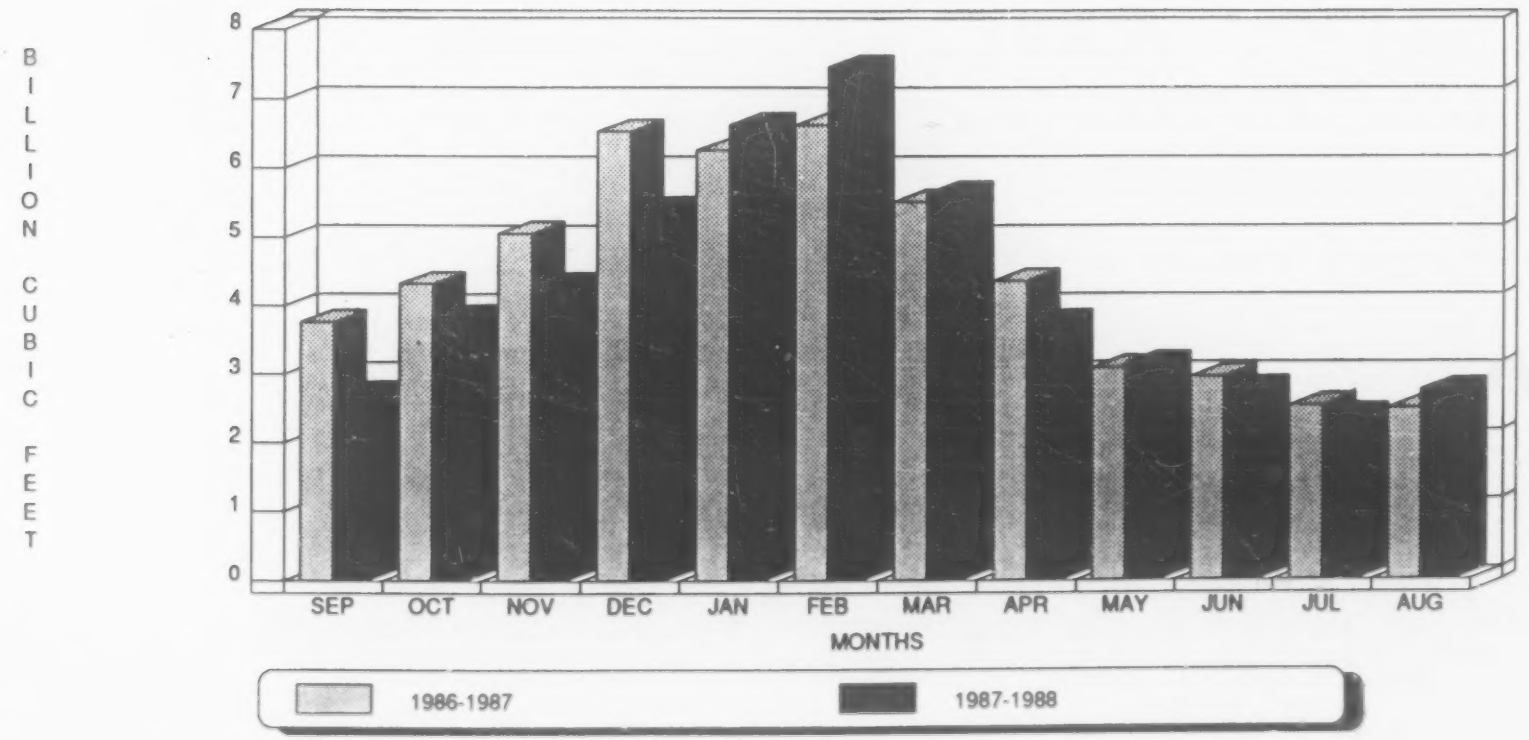

Source: PUCO Form SG-1.

# FIG. 7-B. OHIO COMMERCIAL SECTOR NATURAL GAS CONSUMPTION: 1986 - 1987 VS. 1987 - 1988



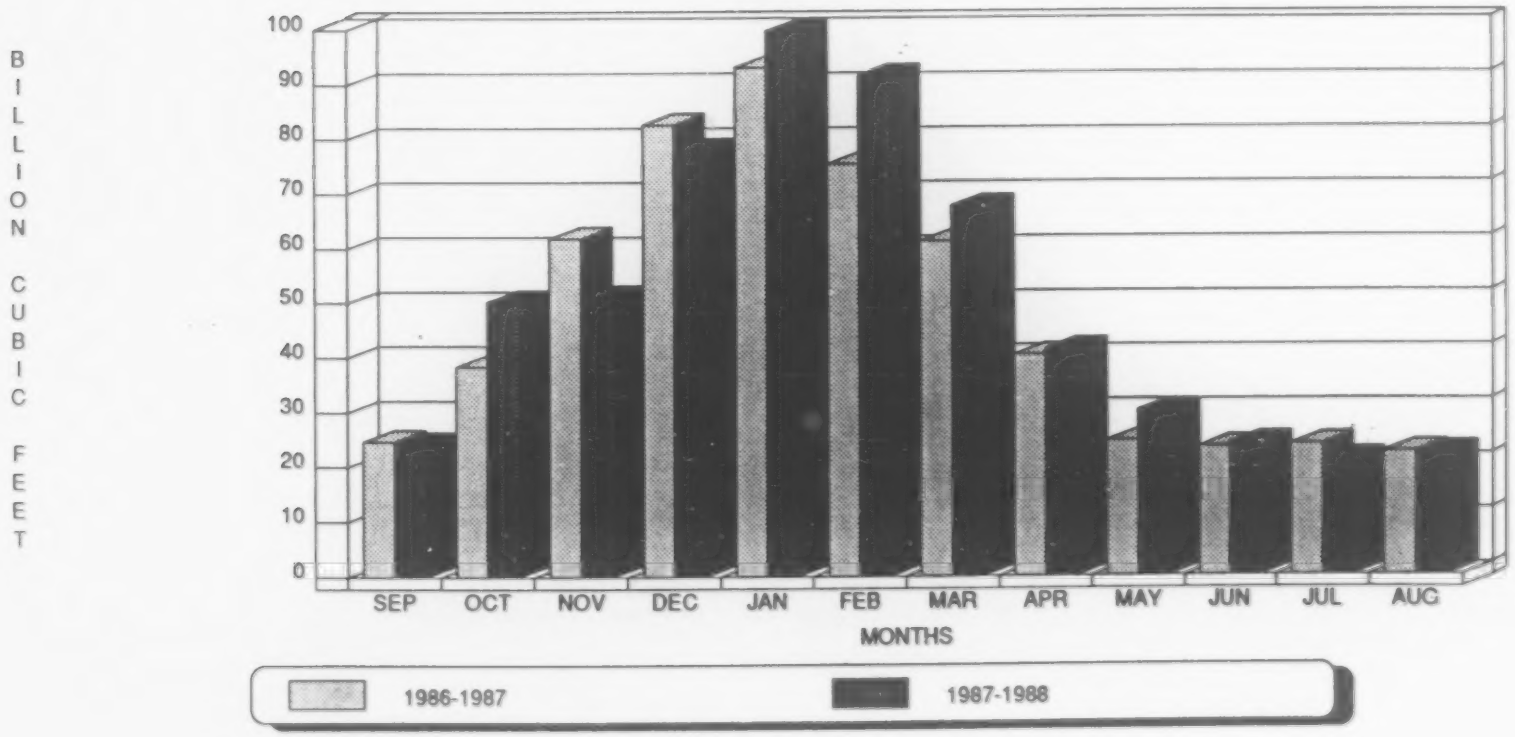

Source: PUCO Form SG-1.

# FIG. 7-C. OHIO INDUSTRIAL SECTOR NATURAL GAS CONSUMPTION: 1986 - 1987 VS. 1987 - 1988




Source: PUCO Form SG-1.

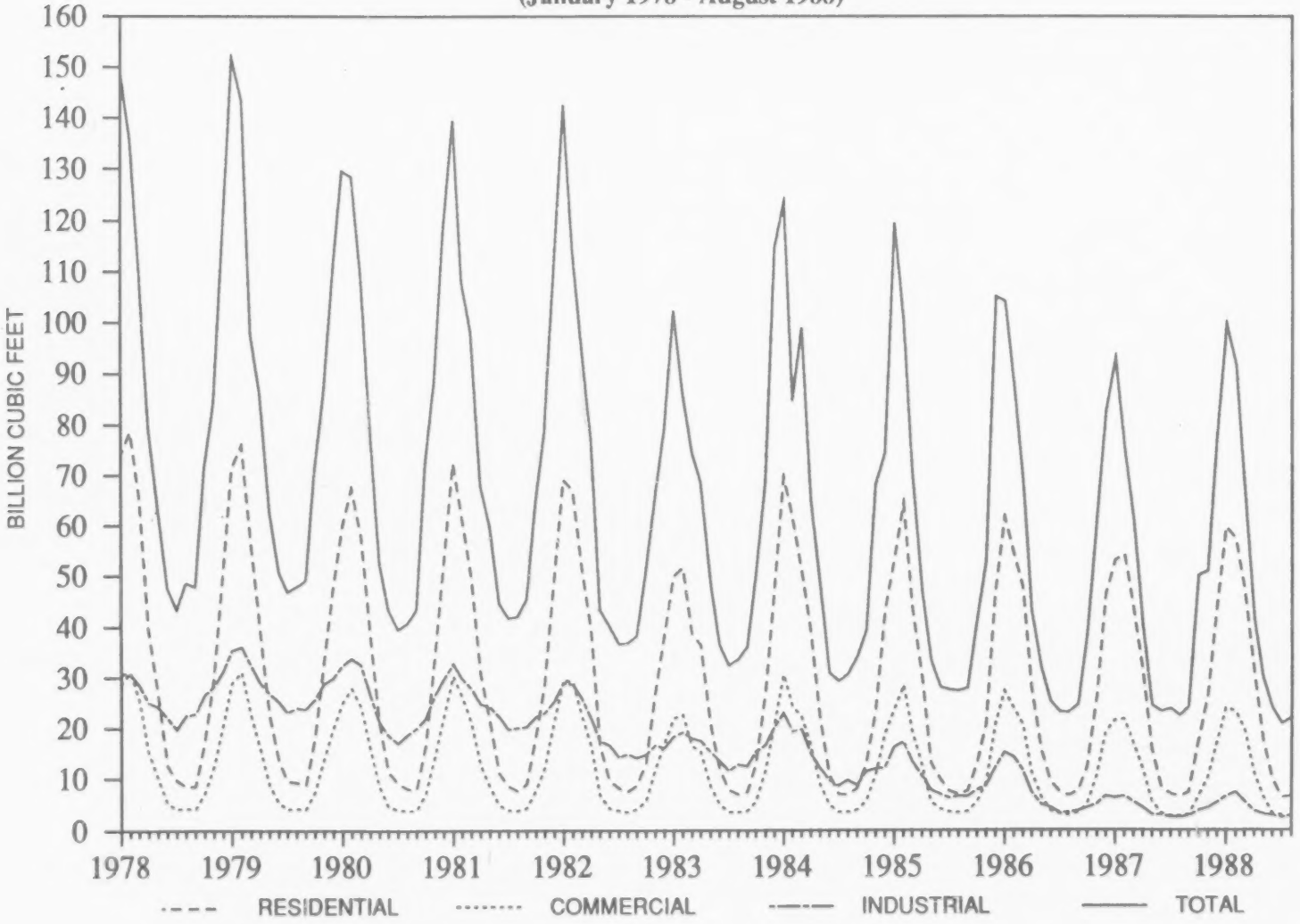
# FIG. 7-D. TOTAL OHIO NATURAL GAS CONSUMPTION: 1986 - 1987 VS. 1987 - 1988




Source: PUCO Form SG-1.

## FIG. 7-E. MONTHLY GAS CONSUMPTION

(January 1978 - August 1988)




SOURCE: MONTHLY GAS REPORT.

**Table 10. Ohio Natural Gas Prices in Current Dollars[1]**
**1970-1987**
**($ Per MMBtu)**

| Year | Residential | Commercial | Industrial |
|---|---|---|---|
| 1970 | 0.84 | 0.73 | 0.52 |
| 1971 | 0.96 | 0.81 | 0.56 |
| 1972 | 1.02 | 0.86 | 0.62 |
| 1973 | 1.08 | 0.94 | 0.65 |
| 1974 | 1.23 | 1.07 | 0.85 |
| 1975 | 1.51 | 1.51 | 1.12 |
| 1976 | 1.79 | 1.63 | 1.43 |
| 1977 | 2.23 | 2.07 | 1.95 |
| 1978 | 2.43 | 2.24 | 2.05 |
| 1979 | 2.78 | 2.57 | 2.32 |
| 1980 | 3.45 | 3.23 | 2.97 |
| 1981 | 3.87 | 3.61 | 3.34 |
| 1982 | 4.80 | 4.53 | 4.20 |
| 1983 | 5.90 | 5.54 | 5.01 |
| 1984 | 5.86 | 5.49 | 4.87 |
| 1985 | 5.82 | 5.38 | 4.69 |
| 1986 | 5.53 | 5.12 | 4.47 |
| 1987 | 5.13 | 4.72 | 4.09 |

1 Source: American Gas Association, Gas Facts, 1970-1988.

**Table 11. Ohio Natural Gas Prices in Constant Dollars[1]**
**1970-1987**
**($ Per MMBtu)**

| Year | Residential[2] | Commercial[2] | Industrial[2] |
|---|---|---|---|
| 1970 | 0.72 | 0.63 | 0.45 |
| 1971 | 0.78 | 0.67 | 0.47 |
| 1972 | 0.81 | 0.69 | 0.49 |
| 1973 | 0.81 | 0.71 | 0.46 |
| 1974 | 0.83 | 0.72 | 0.58 |
| 1975 | 0.94 | 0.84 | 0.69 |
| 1976 | 1.05 | 0.96 | 0.84 |
| 1977 | 1.23 | 1.14 | 1.07 |
| 1978 | 1.24 | 1.15 | 1.05 |
| 1979 | 1.28 | 1.18 | 1.07 |
| 1980 | 1.40 | 1.31 | 1.20 |
| 1981 | 1.42 | 1.34 | 1.25 |
| 1982 | 1.66 | 1.57 | 1.45 |
| 1983 | 1.98 | 1.86 | 1.68 |
| 1984 | 1.88 | 1.76 | 1.57 |
| 1985 | 1.81 | 1.67 | 1.46 |
| 1986 | 1.68 | 1.60 | 1.36 |
| 1987 | 1.51 | 1.39 | 1.20 |

1 Source: American Gas Association, Gas Facts, 1970-1988 and PUCO, Division of Forecasting and Siting.

2 All prices are stated in terms of 1967 dollars.

**Table 12. Projected Aggregate Supply and Requirements for Natural Gas for Eight Major Utilities[1]**
**September 1988 - August 1989**
**(MMCF)**

| Month | Supply | Demand | Deficiency[2] | Percent Deficiency |
|---|---|---|---|---|
| September | 24,838 | 24,838 | 0 | 0.00 |
| October | 39,999 | 39,999 | 0 | 0.00 |
| November | 57,579 | 57,579 | 0 | 0.00 |
| December | 79,029 | 79,029 | 0 | 0.00 |
| January | 94,469 | 94,469 | 0 | 0.00 |
| February | 82,857 | 82,857 | 0 | 0.00 |
| March | 67,329 | 67,329 | 0 | 0.00 |
| April | 46,250 | 46,250 | 0 | 0.00 |
| May | 32,972 | 32,972 | 0 | 0.00 |
| June | 22,990 | 22,990 | 0 | 0.00 |
| July | 22,029 | 22,029 | 0 | 0.00 |
| August | 21,815 | 21,815 | 0 | 0.00 |
| TOTALS | | | | |
| Summer[3] | 210,893 | 210,893 | 0 | 0.00 |
| Winter[4] | 381,263 | 381,263 | 0 | 0.00 |
| Annual | 592,156 | 592,156 | 0 | 0.00 |

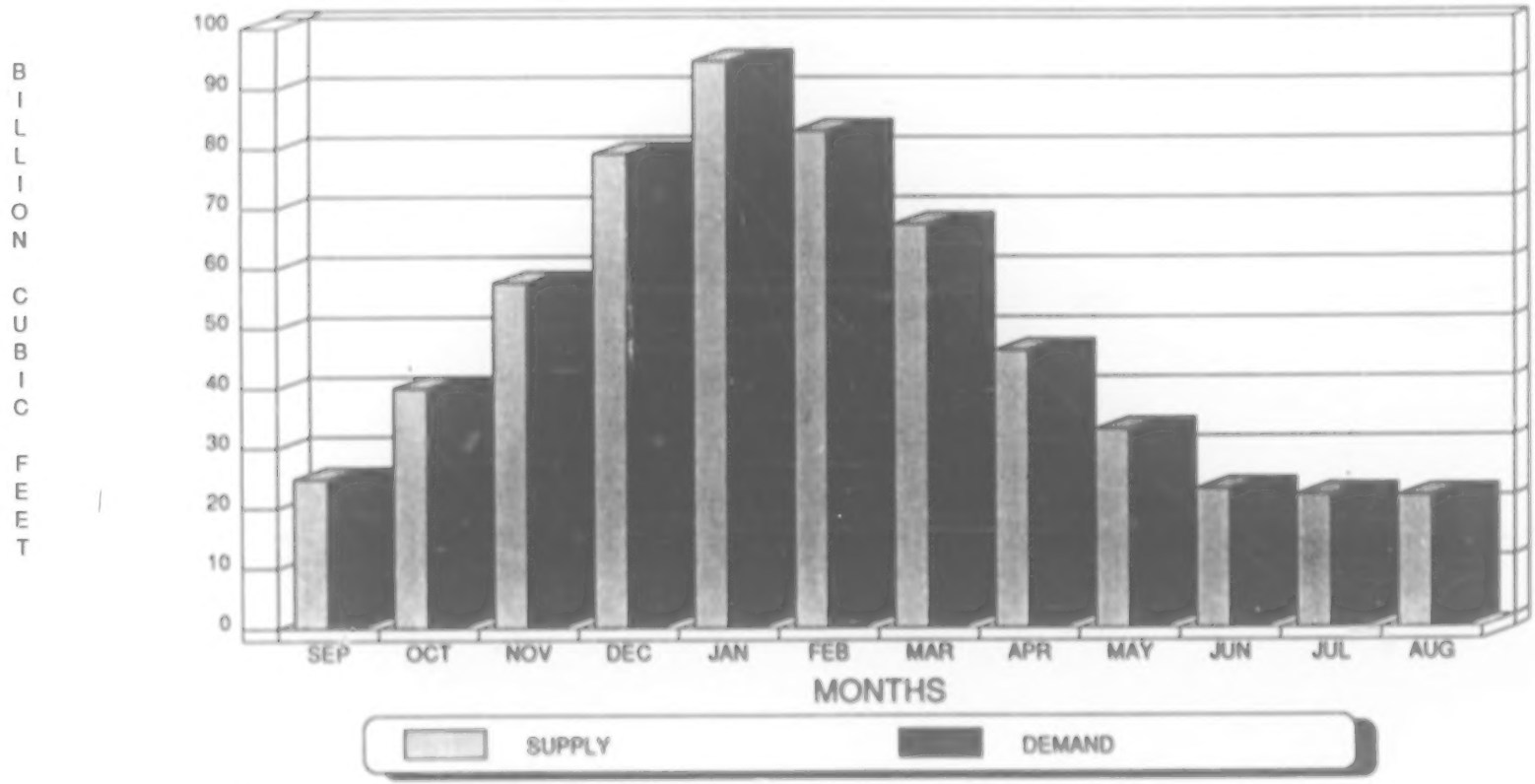
1 Source: PUCO FORM SG-1 and PUCO, Division of Forecasting and Siting.

2 A positive deficiency indicates a shortage and a negative deficiency indicates a surplus.

3 Summer months include Apr, May, Jun, Jul, Aug, Sep, Oct.

4 Winter months include Nov, Dec, Jan, Feb, Mar.

# FIG. 8. PROJECTED SUPPLY AND REQUIREMENTS OF NATURAL GAS BY SECTOR: TOTAL OF EIGHT MAJOR COMPANIES SEPTEMBER 1988 - AUGUST 1989




Source: PUCO, Division of Forecasting & Siting.

## TABLE 13. COMPARISON BETWEEN ONE YEAR OF ACTUAL AND FORECAST DEMAND FOR EIGHT MAJOR OHIO GAS UTILITIES BY SECTOR

(MMCF)

COMPARISON BETWEEN 1 YEAR OF ACTUAL AND FORECAST DEMAND (IN MMCF) FOR 8 MAJOR OHIO GAS UTILITIES BY SECTOR

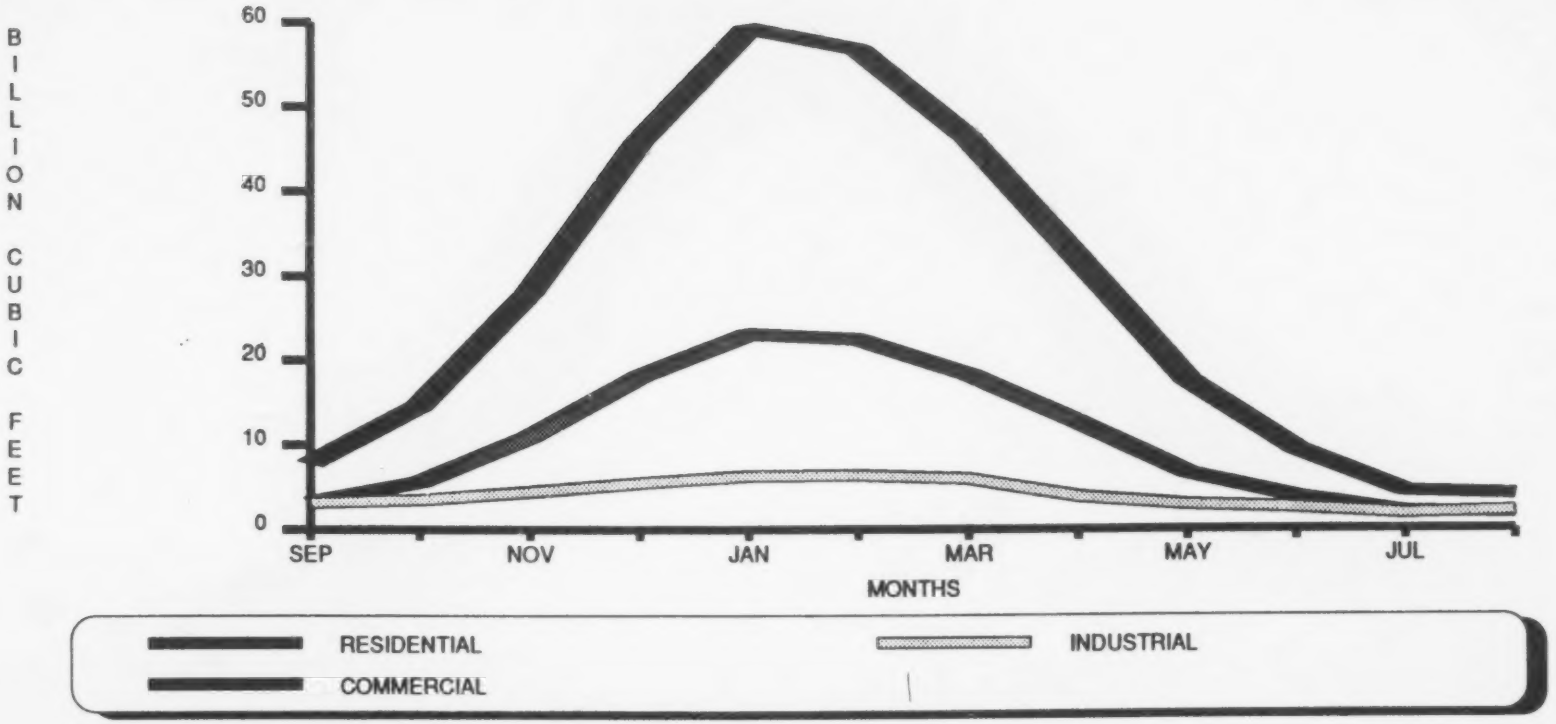
| MONTH/YEAR | DEGREE DAYS | RESIDENTIAL REQUIREMENT | COMMERCIAL REQUIREMENT | INDUSTRIAL REQUIREMENT | OTHER REQUIREMENT | STORAGE (IN) | TOTAL REQUIREMENT | DEFICIENCY |
|---|---|---|---|---|---|---|---|---|
| 9/88 | 87 | 7820 | 3237 | 3180 | 1961 | 8660 | 24838 | 0 |
| 9/87 | 87 | 7319 | 3017 | 2720 | 2494 | 8451 | 24201 | 0 |
| | 0.0% | 6.8% | 7.3% | 16.9% | -28.0% | 2.5% | 2.6% | 0.0% |
| 10/88 | 334 | 14662 | 5587 | 3535 | 8643 | 7572 | 39999 | 0 |
| 10/87 | 334 | 17404 | 6529 | 3835 | 13291 | 9080 | 50139 | 0 |
| | 0.0% | -15.8% | -14.4% | -7.8% | -35.0% | -16.6% | -20.2% | 0.0% |
| 11/88 | 690 | 28024 | 10982 | 4476 | 10239 | 3858 | 57579 | 0 |
| 11/87 | 686 | 26364 | 10182 | 4308 | 7250 | 2915 | 51019 | 0 |
| | 0.6% | 6.3% | 7.9% | 3.9% | 41.2% | 32.3% | 12.9% | 0.0% |
| 12/88 | 1052 | 45876 | 18103 | 5502 | 9548 | 0 | 79029 | 0 |
| 12/87 | 1028 | 44140 | 17253 | 5415 | 10331 | 886 | 78025 | 0 |
| | 2.3% | 3.9% | 4.9% | 1.6% | -7.6% | -100.0% | 1.3% | 0.0% |
| 1/89 | 1141 | 59291 | 23124 | 6328 | 4400 | 1326 | 94469 | 0 |
| 1/88 | 1124 | 59683 | 24036 | 6634 | 9101 | 239 | 99693 | 0 |
| | 1.5% | -0.7% | -3.8% | -4.6% | -51.7% | 454.8% | -5.2% | 0.0% |
| 2/89 | 980 | 56830 | 22483 | 6428 | -4210 | 1326 | 82857 | 0 |
| 2/88 | 977 | 57405 | 23271 | 7448 | 3334 | 3 | 91481 | 0 |
| | 0.3% | -1.0% | -3.4% | -13.9% | -226.3% | 44100.0% | -9.4% | 0.0% |
| 3/89 | 823 | 46352 | 18359 | 6006 | -3388 | 0 | 67329 | 0 |
| 3/88 | 814 | 47174 | 19810 | 5634 | -5457 | 611 | 67572 | 0 |
| | 1.1% | -1.7% | -7.3% | 6.6% | 40.1% | -100.0% | -0.4% | 0.0% |
| 4/89 | 735 | 32054 | 12584 | 3853 | -6458 | 4217 | 46250 | 0 |
| 4/88 | 455 | 31039 | 11152 | 3758 | -6490 | 1854 | 41313 | 0 |
| | 61.5% | 3.3% | 12.8% | 2.5% | 0.5% | 127.5% | 12.0% | 0.0% |
| 5/89 | 282 | 17606 | 6575 | 2859 | -3878 | 9810 | 32972 | 0 |
| 5/88 | 196 | 17756 | 6648 | 3145 | -8008 | 10402 | 29943 | 0 |
| | 3.1% | -0.8% | -1.1% | -9.1% | 51.6% | -5.7% | 10.1% | 0.0% |
| 6/89 | 30 | 9342 | 3765 | 2514 | -2414 | 9783 | 22990 | 0 |
| 6/88 | 29 | 9984 | 3260 | 2788 | -2086 | 10040 | 23986 | 0 |
| | 3.4% | -6.4% | 15.5% | -9.8% | -15.7% | -2.6% | -4.2% | 0.0% |
| 7/89 | 5 | 6890 | 2960 | 2087 | 379 | 9703 | 22029 | 0 |
| 7/88 | 5 | 6403 | 2958 | 2584 | -525 | 9808 | 21028 | 0 |
| | 0.0% | 7.6% | 0.1% | -12.0% | 172.2% | -1.1% | 4.8% | 0.0% |
| 8/89 | 11 | 6447 | 2794 | 2398 | 1178 | 8998 | 21815 | 0 |
| 8/88 | 11 | 6690 | 2646 | 2762 | 646 | 9401 | 22145 | 0 |
| | 0.0% | -3.6% | 5.6% | -13.2% | 82.4% | -4.3% | -1.5% | 0.0% |
| SUMMER TOTAL | 1484 | 94821 | 37502 | 20436 | -609 | 58743 | 210893 | 0 |
| | 1117 | 96595 | 36210 | 21392 | -478 | 59036 | 212755 | 0 |
| | 25.7% | -1.8% | 3.6% | -4.5% | -27.4% | -0.5% | -0.9% | 0.0% |
| WINTER TOTAL | 4686 | 236373 | 93851 | 28748 | 16589 | 6510 | 381263 | 0 |
| | 4629 | 234766 | 94552 | 29459 | 24359 | 4654 | 387790 | 0 |
| | 1.2% | 0.7% | -1.6% | -2.4% | -31.9% | 39.9% | -1.7% | 0.0% |
| YEAR TOTAL | 6090 | 331194 | 136553 | 49176 | 15980 | 65253 | 592156 | 0 |
| | 5746 | 331361 | 130762 | 50851 | 23881 | 63690 | 600545 | 0 |
| | 6.0% | -0.1% | -0.2% | -3.3% | -33.1% | 2.5% | -1.4% | 0.0% |

NOTE: (1) WINTER TOTAL IS A SUM OF THE VALUES IN NOVEMBER, DECEMBER, JANUARY, FEBRUARY, AND MARCH

(2) 999.9% REPRESENTS AN INFINITE PERCENTAGE CHANGE RESULTING FROM AN INCREASE FROM A ZERO VALUE TO SOME NON-ZERO VALUE AND THUS A DIVISION BY ZERO.

(3) A POSITIVE DEFICIENCY INDICATES SHORTAGE, A NEGATIVE DEFICIENCY INDICATES SURPLUS.

# FIG. 9. PROJECTED REQUIREMENTS OF NATURAL GAS BY SECTOR: EIGHT MAJOR COMPANIES SEPT 1988 - AUG 1989




Source: PUCO, Division of Forecasting and Siting.

## TABLE 14. COMPARISON BETWEEN ONE YEAR OF ACTUAL AND FORECAST SUPPLY FOR EIGHT MAJOR OHIO GAS UTILITIES BY SOURCE (MMCF)

COMPARISON BETWEEN 1 YEAR OF ACTUAL AND FORECAST SUPPLY (IN MMCF) FOR 8 MAJOR OHIO GAS UTILITIES BY SOURCE

| MO/YR | COLUMBIA GAS | CONSOLID-ATED GAS | LAWREN-CEBURG | MICH. MISC. | PANHANDLE EAST | TENN. GAS | TEXAS EASTERN | TEXAS GAS | EMERG. GAS | OHIO PRODUCT | SNG | STORAGE/ PROPANE | OTHER | TOTAL SUPPLIES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9/88 | 715 | 3692 | 0 | 18 | 185 | 0 | 300 | 0 | 0 | 4454 | 0 | 165 | 15389 | 24838 |
| 9/87 | -1138 | 1177 | -54 | 8 | 2 | 0 | 283 | 0 | 0 | 5525 | 0 | 330 | 18068 | 24201 |
| | 162.8% | 213.7% | 100.0% | 125.0% | 9150.0% | 0.0% | 6.0% | 0.0% | 0.0% | -19.4% | 0.0% | -50.0% | -15.3% | 2.6% |
| 10/88 | 9753 | 9494 | 0 | 34 | 45 | 0 | 141 | 0 | 0 | 4664 | 0 | 170 | 23806 | 39999 |
| 10/87 | 12258 | 12699 | 5 | 5 | 68 | 7 | 206 | 0 | 0 | 4640 | 0 | 278 | 19973 | 50139 |
| | -53.1% | -25.2% | -100.0% | 620.0% | -33.8% | -100.0% | -31.6% | 0.0% | 0.0% | 0.5% | 0.0% | -38.8% | 19.2% | -20.2% |
| 11/88 | 3165 | 6856 | 0 | 40 | 69 | 0 | 234 | 0 | 0 | 4652 | 0 | 8677 | 36884 | 97579 |
| 11/87 | 9426 | 5486 | 3 | 27 | 18 | 1 | 167 | 0 | 0 | 4418 | 0 | 4541 | 26940 | 51019 |
| | -66.4% | 25.0% | -100.0% | 48.1% | 390.0% | -100.0% | 40.1% | 0.0% | 0.0% | 5.3% | 0.0% | 25.0% | 36.9% | 12.9% |
| 12/88 | 4757 | 6822 | 0 | 51 | 98 | 0 | 330 | 0 | 0 | 4635 | 0 | 14476 | 47651 | 79829 |
| 12/87 | 28761 | 2036 | 44 | 40 | 69 | 4 | 38 | 0 | 0 | 4942 | 0 | 17834 | 24255 | 78025 |
| | -83.5% | 235.1% | -100.0% | 27.5% | 42.0% | -100.0% | 768.4% | 0.0% | 0.0% | -6.2% | 0.0% | -17.7% | 96.5% | 1.3% |
| 1/89 | 6642 | 9252 | 0 | 73 | 187 | 0 | 264 | 0 | 0 | 4548 | 0 | 17919 | 35672 | 94469 |
| 1/88 | 44189 | 14895 | 1 | 135 | 168 | 3 | 264 | 0 | 0 | 4133 | 0 | 16494 | 19219 | 99693 |
| | -85.0% | -37.9% | -100.0% | -45.9% | -33.1% | -100.0% | 0.0% | 0.0% | 0.0% | 9.8% | 0.0% | 7.3% | 189.7% | -5.2% |
| 2/89 | 5557 | 10728 | 0 | 67 | 98 | 0 | 322 | 0 | 0 | 4505 | 0 | 11852 | 49734 | 82857 |
| 2/88 | 43089 | 14928 | 5 | 58 | 168 | 0 | 289 | 0 | 0 | 4176 | 0 | 11793 | 16975 | 91481 |
| | -87.1% | -28.1% | -100.0% | 15.5% | -44.4% | 0.0% | 11.4% | 0.0% | 0.0% | 7.9% | 0.0% | 0.5% | 193.0% | -9.4% |
| 3/89 | 3882 | 3073 | 0 | 58 | 98 | 0 | 315 | 0 | 0 | 4618 | 0 | 8598 | 44687 | 67329 |
| 3/88 | 21434 | 5323 | 5 | 22 | 29 | 0 | 258 | 0 | 0 | 4957 | 0 | 8564 | 26980 | 67572 |
| | -81.9% | -42.3% | -100.0% | 163.6% | 237.9% | 0.0% | 22.1% | 0.0% | 0.0% | -6.8% | 0.0% | 0.4% | 73.0% | -0.4% |
| 4/89 | 2805 | 1446 | 0 | 45 | 63 | 0 | 234 | 0 | 0 | 4613 | 0 | 8581 | 31393 | 44258 |
| 4/88 | 9010 | 2677 | 42 | 104 | 11 | 0 | 212 | 0 | 0 | 4442 | 0 | 4486 | 28327 | 41313 |
| | -68.8% | -46.0% | -100.0% | -57.5% | 472.7% | 0.0% | 19.8% | 0.0% | 0.0% | 3.8% | 0.0% | 33.7% | 54.4% | 12.8% |
| 5/89 | 1465 | 6964 | 0 | 19 | 35 | 0 | 184 | 0 | 0 | 4613 | 0 | 238 | 19498 | 32972 |
| 5/88 | 5 | 5750 | 1 | 8 | 65 | 0 | 105 | 0 | 0 | 4933 | 0 | 486 | 18670 | 29963 |
| | 29200.0% | 21.1% | -100.0% | 137.5% | -46.2% | 0.0% | 46.7% | 0.0% | 0.0% | -6.5% | 0.0% | -43.3% | 4.4% | 10.1% |
| 6/89 | 724 | 2338 | 0 | 13 | 27 | 0 | 291 | 0 | 0 | 4573 | 0 | 165 | 14839 | 22998 |
| 6/88 | 364 | 2853 | 20 | 3 | 38 | 0 | 229 | 0 | 0 | 4685 | 0 | 198 | 15596 | 23986 |
| | 98.9% | -17.4% | -100.0% | 333.3% | -28.9% | 0.0% | 27.1% | 0.0% | 0.0% | -2.4% | 0.0% | -16.7% | -4.9% | -4.2% |
| 7/89 | 699 | 1664 | 0 | 10 | 18 | 0 | 300 | 0 | 0 | 4580 | 0 | 178 | 14588 | 22029 |
| 7/88 | 83 | 634 | -21 | 1 | 35 | 0 | 287 | 0 | 0 | 4721 | 0 | 719 | 15069 | 21028 |
| | 742.2% | 162.5% | 100.0% | 900.0% | -48.6% | 0.0% | 4.5% | 0.0% | 0.0% | -3.0% | 0.0% | -22.4% | -3.2% | 4.8% |
| 8/89 | 737 | 1415 | 0 | 14 | 57 | 0 | 298 | 0 | 0 | 4577 | 0 | 165 | 14552 | 21815 |
| 8/88 | 1499 | 57 | 1 | 13 | 2 | 0 | 277 | 0 | 0 | 4821 | 0 | 198 | 15277 | 22145 |
| | -50.8% | 2382.5% | -100.0% | 7.7% | 2750.0% | 0.0% | 7.6% | 0.0% | 0.0% | -5.1% | 0.0% | -16.7% | -4.7% | -1.5% |
| SUMMER TOTAL | | | | | | | | | | | | | | |
| | 12978 | 27035 | 0 | 155 | 438 | 0 | 1738 | 0 | 0 | 32074 | 0 | 4616 | 133977 | 210893 |
| | 22081 | 25847 | -6 | 144 | 221 | 7 | 1599 | 0 | 0 | 33767 | 0 | 6115 | 122988 | 212755 |
| | -41.2% | 4.6% | 100.0% | 7.6% | 94.6% | -100.0% | 8.7% | 0.0% | 0.0% | -5.0% | 0.0% | 8.2% | 8.9% | -0.9% |
| WINTER TOTAL | | | | | | | | | | | | | | |
| | 24003 | 36731 | 0 | 289 | 462 | 0 | 1463 | 0 | 0 | 22958 | 0 | 38722 | 234632 | 381263 |
| | 146899 | 42648 | 68 | 282 | 436 | 8 | 1814 | 0 | 0 | 22626 | 0 | 59426 | 114349 | 387790 |
| | -83.7% | -13.9% | -100.0% | 2.5% | 6.0% | -100.0% | 44.2% | 0.0% | 0.0% | 1.4% | 0.0% | -1.2% | 106.9% | -1.7% |
| YEAR TOTAL | | | | | | | | | | | | | | |
| | 36981 | 63766 | 0 | 444 | 892 | 0 | 3203 | 0 | 0 | 55024 | 0 | 65338 | 370689 | 592156 |
| | 168980 | 68515 | 54 | 426 | 657 | 15 | 2615 | 0 | 0 | 56393 | 0 | 65541 | 237349 | 600545 |
| | -78.1% | -6.9% | -100.0% | 4.2% | 35.8% | -100.0% | 22.5% | 0.0% | 0.0% | -2.4% | 0.0% | -0.3% | 56.1% | -1.4% |

NOTE: (1) WINTER TOTAL IS A SUM OF THE VALUES IN NOVEMBER, DECEMBER, JANUARY, FEBRUARY, AND MARCH.

(2) 999.9% REPRESENTS AN INFINITE PERCENTAGE CHANGE RESULTING FROM AN INCREASE FROM A ZERO VALUE TO SOME NON-ZERO VALUE AND THUS A DIVISION BY ZERO.

**Table 15. The Growth of Non-tariff Industrial Sales in Ohio[1]**
**(1978 - 1987)**
**(MMCF)**

| Year | Industrial Tariff Sales | Industrial Non-tariff Sales | Total Industrial Sales | Share of Non-tariff Sales in Total Industrial Requirements |
|---|---|---|---|---|
| 1978 | 296,600 | 28,276 | 324,876 | 8.70% |
| 1979 | 294,506 | 29,533 | 324,039 | 9.11% |
| 1980 | 288,213 | 30,725 | 318,938 | 9.63% |
| 1981 | 278,490 | 36,919 | 315,409 | 11.71% |
| 1982 | 234,897 | 32,735 | 267,632 | 12.23% |
| 1983 | 210,835 | 47,590 | 258,425 | 18.42% |
| 1984 | 175,375 | 85,380 | 260,755 | 32.74% |
| 1985 | 120,950 | 133,990 | 254,940 | 52.56% |
| 1986 | 84,390 | 170,410 | 254,800 | 66.88% |
| 1987 | 50,118 | 170,211 | 220,329 | 77.25% |

1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting and Siting.
Energy Information Administration's Natural Gas Annuals, 1979-1985.
Energy Information Administration's State Energy Data Report: Consumption Estimates 1960-1985.

**Table 16. Independent Forecasts of Gas Supply and Demand for the Eight Major Ohio Gas Utilities[1]**
**November 1988 - March 1989**
**(MMCF)**

| | Normal Weather | | | 10% Colder Than Normal Weather | | |
|---|---|---|---|---|---|---|
| | Supply | Demand | Surplus (Deficiency)[2] | Supply | Demand | Surplus (Deficiency)[2] |
| Cincinnati Gas & Electric | 47,136 | 48,249 | (1,113) | 51,898 | 53,174 | (1,276) |
| Columbia Gas | 132,645 | 133,312 | (667) | 145,022 | 145,790 | (768) |
| Dayton Power & Light | 33,654 | 34,309 | (655) | 36,425 | 37,133 | (708) |
| East Ohio Gas | 152,350 | 153,176 | (826) | 163,424 | 164,319 | (895) |
| National Gas | 2,133 | 2,133 | 0 | 2,303 | 2,303 | 0 |
| Ohio Gas | 5,766 | 5,766 | 0 | 6,342 | 6,342 | 0 |
| River Gas | 1,869 | 1,869 | 0 | 2,010 | 2,010 | 0 |
| West Ohio Gas | 6,877 | 6,877 | 0 | 7,453 | 7,453 | 0 |
| Total | 382,430 | 385,691 | (3,261) | 414,877 | 418,524 | (3,647) |

1 Source: PUCO Form SG-2 of reporting utilities and PUCO, Divison of Forecasting and Siting.

2 Numbers within parentheses indicate deficiency.

**Table 17. Independent Forecasts of Gas Supply and Demand for Cincinnati Gas and Electric Company[1]**
**November 1988 - March 1989**
**(MMCF)**

| | Normal Weather | | | | 10% Colder Than Normal Weather | | | |
|---|---|---|---|---|---|---|---|---|
| | Supply | HDD[2] | Demand | Surplus (Deficiency)[3] | Supply | HDD[2] | Demand | Surplus (Deficiency)[3] |
| November 1988 | 6,657 | 648 | 6,350 | 307 | 7,042 | 713 | 6,717 | 325 |
| December 1988 | 10,274 | 967 | 10,253 | 21 | 11,238 | 1,064 | 11,215 | 23 |
| January 1989 | 12,105 | 1,119 | 13,065 | (960) | 13,631 | 1,231 | 14,712 | (1,081) |
| February 1989 | 10,172 | 921 | 10,832 | (660) | 11,363 | 1,013 | 12,100 | (737) |
| March 1989 | 7,928 | 719 | 7,749 | 179 | 8,624 | 791 | 8,429 | 195 |
| Total | 47,136 | | 48,249 | (1,113) | 51,898 | | 53,174 | (1,276) |

1 Source: Cincinnati Gas & Electric Company's PUCO Form SG-2 and PUCO, Divison of Forecasting and Siting.

2 Heating Degree Days.

3 Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

**Table 18. Independent Forecasts of Gas Supply and Demand for Columbia Gas of Ohio[1]**
**November 1988 - March 1989**
**(MMCF)**

| | Normal Weather | | | | 10% Colder Than Normal Weather | | | |
|---|---|---|---|---|---|---|---|---|
| | Supply | HDD[2] | Demand | Surplus (Deficiency)[3] | Supply | HDD[2] | Demand | Surplus (Deficiency)[3] |
| November 1988 | 18,473 | 594 | 17,966 | 507 | 19,856 | 653 | 19,311 | 545 |
| December 1988 | 27,838 | 933 | 26,589 | 1,249 | 30,225 | 1,026 | 28,869 | 1,356 |
| January 1989 | 33,158 | 1,193 | 33,850 | (692) | 36,307 | 1,312 | 37,065 | (758) |
| February 1989 | 29,118 | 1,149 | 30,984 | (1,866) | 32,141 | 1,264 | 34,201 | (2,060) |
| March 1989 | 24,058 | 912 | 23,923 | 135 | 26,493 | 1,003 | 26,344 | 149 |
| Total | 132,645 | | 133,312 | (667) | 145,022 | | 145,790 | (768) |

1 Source: Columbia Gas of Ohio's PUCO Form SG-2 and PUCO, Divison of Forecasting and Siting.

2 Heating Degree Days.

3 Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

**Table 19. Independent Forecasts of Gas Supply and Demand for Dayton Power & Light Company[1]**
**November 1988 - March 1989**
**(MMCF)**

| | Normal Weather | | | | 10% Colder Than Normal Weather | | | |
|---|---|---|---|---|---|---|---|---|
| | Supply | HDD[2] | Demand | Surplus (Deficiency)[3] | Supply | HDD[2] | Demand | Surplus (Deficiency)[3] |
| November 1988 | 4,500 | 465 | 4,541 | (41) | 4,833 | 512 | 4,877 | (44) |
| December 1988 | 6,425 | 822 | 7,109 | (684) | 6,947 | 904 | 7,687 | (740) |
| January 1989 | 8,580 | 1,181 | 8,774 | (194) | 9,317 | 1,299 | 9,528 | (211) |
| February 1989 | 8,355 | 1,126 | 8,091 | 264 | 9,072 | 1,239 | 8,785 | 287 |
| March 1989 | 5,794 | 955 | 5,794 | 0 | 6,256 | 1,051 | 6,256 | 0 |
| Total | 33,654 | | 34,309 | (655) | 36,425 | | 37,133 | (708) |

1 Source: Dayton Power & Light's PUCO Form SG-2 and PUCO, Divison of Forecasting and Siting.

2 Heating Degree Days.

3 Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

**Table 20. Independent Forecasts of Gas Supply and Demand for East Ohio Gas Company[1]**
**November 1988 - March 1989**
**(MMCF)**

| | Normal Weather | | | | 10% Colder Than Normal Weather | | | |
|---|---|---|---|---|---|---|---|---|
| | Supply | HDD[2] | Demand | Surplus (Deficiency)[3] | Supply | HDD[2] | Demand | Surplus (Deficiency)[3] |
| November 1988 | 24,274 | 566 | 23,405 | 869 | 25,870 | 623 | 24,944 | 926 |
| December 1988 | 31,636 | 964 | 32,572 | (936) | 34,071 | 1,060 | 35,079 | (1,008) |
| January 1989 | 37,637 | 1,237 | 37,955 | (318) | 40,456 | 1,361 | 40,798 | (342) |
| February 1989 | 32,269 | 1,168 | 32,917 | (648) | 34,540 | 1,293 | 35,234 | (694) |
| March 1989 | 26,534 | 942 | 26,327 | 207 | 28,487 | 1,036 | 28,265 | 222 |
| Total | 152,350 | | 153,176 | (826) | 163,424 | | 164,319 | (895) |



1 Source: Cincinnati Gas & Electric Company's PUCO Form SG-2 and PUCO, Divison of Forecasting and Siting.

2 Heating Degree Days.

3 Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

# APPENDIX A

**Table A-1: Allegheny Power System[1]**
**Forecast of Net Energy for Load**
**(1000 MWH)**

| Month | Net Energy For Load (1987-1988) | Utility Forecast (1988-1989) | %Change Utility Forecast vs Actual | PUCO Forecast (1988-1989) | %Change PUCO Forecast vs Actual |
|---|---|---|---|---|---|
| November | 2,925 | 3,014 | 3.06 | 2,973 | 1.66 |
| December | 3,236 | 3,343 | 3.32 | 3,262 | 0.80 |
| January | 3,517 | 3,550 | 0.94 | 3,601 | 2.38 |
| February | 3,197 | 3,210 | 0.41 | 3,209 | 0.36 |
| March | 3,158 | 3,295 | 4.34 | 3,163 | 0.17 |
| April | 2,771 | 2,935 | 5.90 | 2,806 | 1.24 |
| May | 2,777 | 2,894 | 4.20 | 2,876 | 3.55 |
| June | 2,862 | 2,908 | 1.60 | 2,892 | 1.05 |
| July | 3,067 | 3,061 | -0.20 | 3,068 | 0.03 |
| August | 3,228 | 3,109 | -3.69 | 3,120 | -3.35 |
| September | *[2] | 2,877 | *[2] | 2,826 | *[2] |
| October | *[2] | 2,996 | *[2] | 2,982 | *[2] |

1 Source: Form EIA-119M and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

**Table A-2: American Electric Power[1]**
**Forecast of Net Energy for Load**
**(1000 MWH)**

| Month | Net Energy For Load (1987-1988) | Utility Forecast (1988-1989) | %Change Utility Forecast vs Actual | PUCO Forecast (1988-1989) | %Change PUCO Forecast vs Actual |
|---|---|---|---|---|---|
| November | 7,394 | 7,605 | 2.85 | 7,605 | 2.85 |
| December | 8,268 | 8,449 | 2.19 | 8,416 | 1.79 |
| January | 9,131 | 9,353 | 2.43 | 9,132 | 0.01 |
| February | 8,478 | 8,180 | -3.52 | 8,492 | 0.16 |
| March | 8,254 | 8,383 | 1.56 | 8,326 | 0.87 |
| April | 7,257 | 7,455 | 2.73 | 7,392 | 1.85 |
| May | 7,253 | 7,304 | 0.70 | 7,587 | 4.60 |
| June | 7,739 | 7,527 | -2.74 | 7,530 | -2.71 |
| July | 8,411 | 8,008 | -4.79 | 8,328 | -0.99 |
| August | 8,916 | 8,163 | -8.45 | 8,682 | -2.62 |
| September | *[2] | 7,374 | *[2] | 7,265 | *[2] |
| October | *[2] | 7,491 | *[2] | 7,713 | *[2] |

1 Source: Form EIA-119M and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

**Table A-3: Cincinnati Gas and Electric[1]**
**Forecast of Net Energy for Load**
**(1000 MWH)**

| Month | Net Energy For Load (1987-1988) | Utility Forecast (1988-1989) | %Change Utility Forecast vs Actual | PUCO Forecast (1988-1989) | %Change PUCO Forecast vs Actual |
|---|---|---|---|---|---|
| November | 1,403 | 1,232 | -12.18 | 1,430 | 1.93 |
| December | 1,601 | 1,396 | -12.82 | 1,651 | 3.13 |
| January | 1,759 | 1,498 | -14.82 | 1,714 | -2.52 |
| February | 1,622 | 1,342 | -17.26 | 1,600 | -1.39 |
| March | 1,571 | 1,336 | -14.98 | 1,534 | -2.37 |
| April | 1,352 | 1,167 | -13.71 | 1,375 | 1.68 |
| May | 1,422 | 1,221 | -14.15 | 1,401 | -1.50 |
| June | 1,666 | 1,324 | -20.53 | 1,737 | 4.26 |
| July | 1,931 | 1,490 | -22.84 | 1,940 | 0.47 |
| August | 1,994 | 1,467 | -26.43 | 2,008 | 0.70 |
| September | *[2] | 1,250 | *[2] | 1,466 | *[2] |
| October | *[2] | 1,213 | *[2] | 1,468 | *[2] |

1 Source: Form EIA-119M and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

**Table A-4: Cleveland Electric Illuminating Company[1]**
**Forecast of Net Energy for Load**
**(1000 MWH)**

| Month | Net Energy For Load (1987-1988) | Utility Forecast (1988-1989) | %Change Utility Forecast vs Actual | PUCO Forecast (1988-1989) | %Change PUCO Forecast vs Actual |
|---|---|---|---|---|---|
| November | 1,603 | 1,570 | -2.05 | 1,675 | 4.51 |
| December | 1,727 | 1,677 | -2.91 | 1,807 | 4.62 |
| January | 1,854 | 1,797 | -3.08 | 1,903 | 2.65 |
| February | 1,725 | 1,648 | -4.45 | 1,748 | 1.35 |
| March | 1,764 | 1,722 | -2.36 | 1,783 | 1.10 |
| April | 1,595 | 1,584 | -0.70 | 1,642 | 2.90 |
| May | 1,661 | 1,614 | -2.84 | 1,717 | 3.35 |
| June | 1,772 | 1,643 | -7.27 | 1,748 | -1.36 |
| July | 1,936 | 1,752 | -9.50 | 1,954 | 0.93 |
| August | 2,013 | 1,743 | -13.41 | 1,950 | -3.12 |
| September | *[2] | 1,614 | *[2] | 1,655 | *[2] |
| October | *[2] | 1,634 | *[2] | 1,737 | *[2] |

1 Source: Form EIA-119M and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

**Table A-5: Dayton Power and Light[1]**
**Forecast of Net Energy for Load**
**(1000 MWH)**

| Month | Net Energy For Load (1987-1988) | Utility Forecast (1988-1989) | %Change Utility Forecast vs Actual | PUCO Forecast (1988-1989) | %Change PUCO Forecast vs Actual |
|---|---|---|---|---|---|
| November | 971 | 945 | -2.70 | 1,001 | 3.09 |
| December | 1,108 | 1,038 | -6.34 | 1,171 | 5.63 |
| January | 1,220 | 1,242 | 1.82 | 1,282 | 5.09 |
| February | 1,143 | 1,062 | -7.10 | 1,124 | -1.69 |
| March | 1,095 | 1,099 | 0.39 | 1,093 | -0.16 |
| April | 946 | 946 | -0.02 | 936 | -1.04 |
| May | 1,091 | 929 | -14.85 | 1,089 | -0.22 |
| June | 1,228 | 878 | -28.50 | 1,281 | 4.30 |
| July | 1,285 | 1,091 | -15.10 | 1,282 | -0.20 |
| August | 1,228 | 1,063 | -13.44 | 1,228 | 0.00 |
| September | *[2] | 945 | *[2] | 979 | *[2] |
| October | *[2] | 985 | *[2] | 1,043 | *[2] |

1 Source: Form EIA-119M and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

**Table A-6: Ohio Edison Company[1]**
**Forecast of Net Energy for Load**
**(1000 MWH)**

| Month | Net Energy For Load (1987-1988) | Utility Forecast (1988-1989) | %Change Utility Forecast vs Actual | PUCO Forecast (1988-1989) | %Change PUCO Forecast vs Actual |
|---|---|---|---|---|---|
| November | 2,190 | 2,217 | 1.23 | 2,190 | 0.01 |
| December | 2,362 | 2,368 | 0.26 | 2,366 | 0.16 |
| January | 2,583 | 2,625 | 1.63 | 2,520 | -2.44 |
| February | 2,447 | 2,363 | -3.43 | 2,325 | -5.01 |
| March | 2,468 | 2,491 | 0.92 | 2,368 | -4.06 |
| April | 2,196 | 2,258 | 2.83 | 2,156 | -1.83 |
| May | 2,245 | 2,260 | 0.67 | 2,206 | -1.75 |
| June | 2,374 | 2,381 | 0.29 | 2,296 | -3.30 |
| July | 2,594 | 2,517 | -2.97 | 2,562 | -1.23 |
| August | 2,666 | 2,536 | -4.88 | 2,652 | -0.53 |
| September | *[2] | 2,374 | *[2] | 2,119 | *[2] |
| October | *[2] | 2,453 | *[2] | 2,278 | *[2] |

1 Source: Form EIA-119M and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

**Table A-7: Ohio Valley Electric Corporation[1]**
**Forecast of Net Energy for Load**
**(1000 MWH)**

| Month | Net Energy For Load (1987-1988) | Utility Forecast (1988-1989) | %Change Utility Forecast vs Actual |
|---|---|---|---|
| November | 1,457 | 1,598 | 9.68 |
| December | 1,623 | 1,536 | -5.36 |
| January | 1,571 | 1,470 | -6.43 |
| February | 1,440 | 1,351 | -6.18 |
| March | 1,369 | 1,466 | 7.09 |
| April | 1,335 | 1,383 | 3.60 |
| May | 1,500 | 1,464 | -2.40 |
| June | 1,379 | 1,500 | 8.77 |
| July | *[2] | 1,530 | *[2] |
| August | *[2] | 1,524 | *[2] |
| September | *[2] | 1,387 | *[2] |
| October | *[2] | 1,493 | *[2] |

1 Source: Form EIA-119M and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

**Table A-8: Toledo Edison Company[1]**
**Forecast of Net Energy for Load**
**(1000 MWH)**

| Month | Net Energy For Load (1987-1988) | Utility Forecast (1988-1989) | %Change Utility Forecast vs Actual | PUCO Forecast (1988-1989) | %Change PUCO Forecast vs Actual |
|---|---|---|---|---|---|
| November | 668 | 713 | 6.74 | 670 | 0.31 |
| December | 744 | 732 | -1.61 | 773 | 3.86 |
| January | 777 | 792 | 1.93 | 761 | -2.02 |
| February | 751 | 731 | -2.66 | 752 | 0.08 |
| March | 762 | 751 | -1.44 | 750 | -1.52 |
| April | 683 | 675 | -1.17 | 692 | 1.34 |
| May | 688 | 682 | -0.87 | 715 | 3.91 |
| June | 742 | 698 | -5.93 | 755 | 1.81 |
| July | 795 | 738 | -7.17 | 814 | 2.44 |
| August | *[2] | 773 | *[2] | 778 | *[2] |
| September | *[2] | 688 | *[2] | 705 | *[2] |
| October | *[2] | 681 | *[2] | 737 | *[2] |

1 Source: Form EIA-119M and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

**Table A-9: Independent Forecast of Ohio Electricity Demand[1]**
**Residential Sector**
**(1000 MWH)**

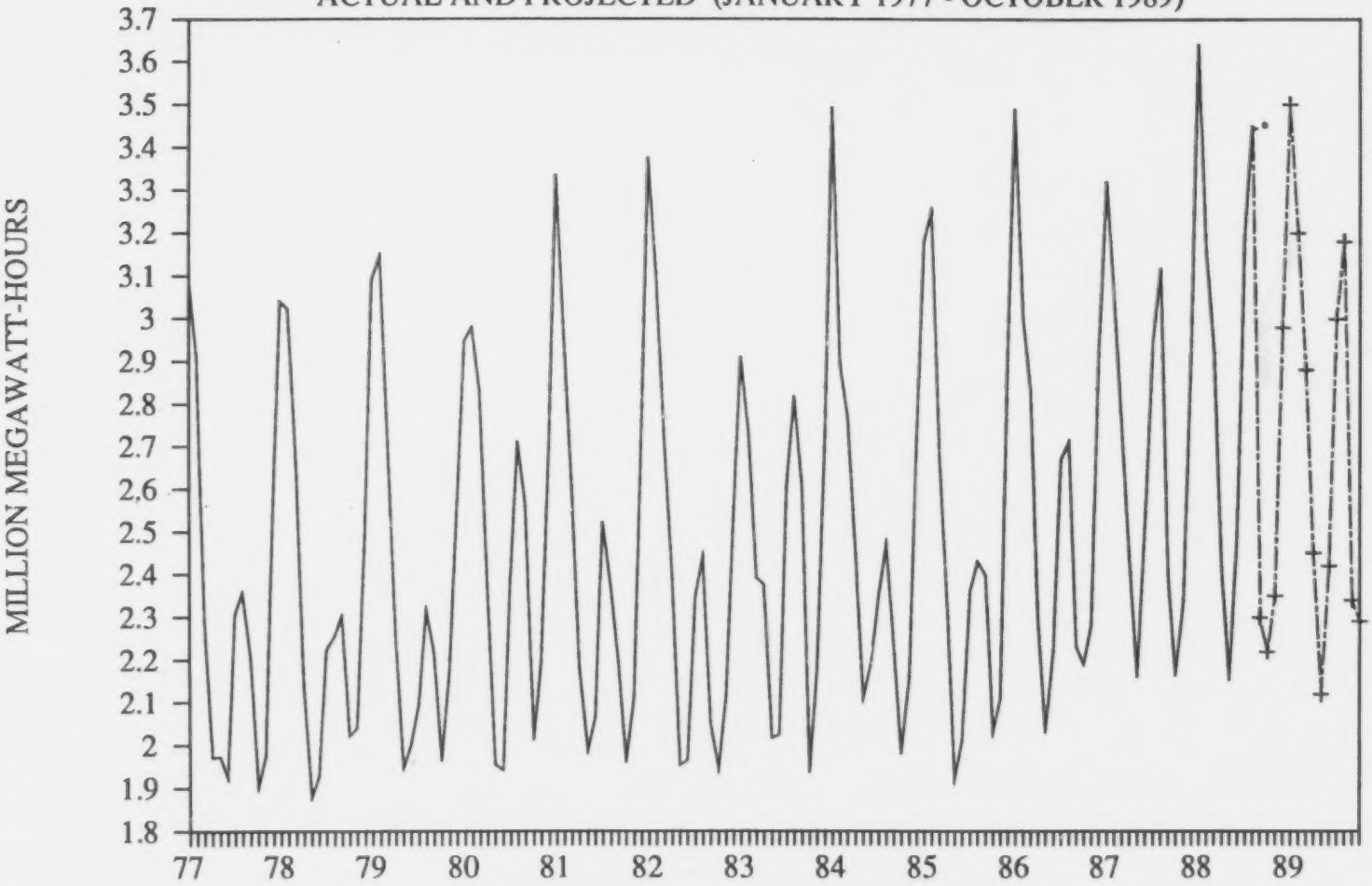
| Month | Lower 95% Confidence Limit | PUCO Forecast (1988-89) | Upper 95% Confidence Limit | Actual (1987-88) | Forecast Percentage Change |
|---|---|---|---|---|---|
| November | 2,190 | 2,350 | 2,510 | 2,338 | 0.5 |
| December | 2,800 | 2,980 | 3,160 | 2,947 | 1.1 |
| January | 3,220 | 3,500 | 3,780 | 3,640 | -3.8 |
| February | 3,040 | 3,200 | 3,360 | 3,156 | 1.4 |
| March | 2,720 | 2,880 | 3,040 | 2,930 | -1.7 |
| April | 2,330 | 2,450 | 2,570 | 2,413 | 1.5 |
| May | 1,990 | 2,120 | 2,250 | 2,152 | -1.5 |
| June | 2,250 | 2,420 | 2,590 | 2,492 | -2.9 |
| July | 2,790 | 3,000 | 3,210 | 3,195 | -6.1 |
| August | 2,970 | 3,180 | 3,390 | 3,449 | -7.8 |
| September | 2,190 | 2,340 | 2,490 | *[2] | *[2] |
| October | 2,200 | 2,290 | 2,370 | *[2] | *[2] |

1 Source: Ohio Electric Utility Institute and PUCO, Division of Forecasting and Siting (Sectoral totals include the eight major investor-owned electric utility companies, excluding OVEC).

2 * = Actual figures not available.

# FIG. A-1. MONTHLY OHIO RESIDENTIAL ELECTRICITY CONSUMPTION

ACTUAL AND PROJECTED (JANUARY 1977 - OCTOBER 1989)




Source: Ohio Electric Utility Institute

—— Actual + Projected

**Table A-10: Independent Forecast of Ohio Electricity Demand[1]**
**Commercial Sector**
**(1000 MWH)**

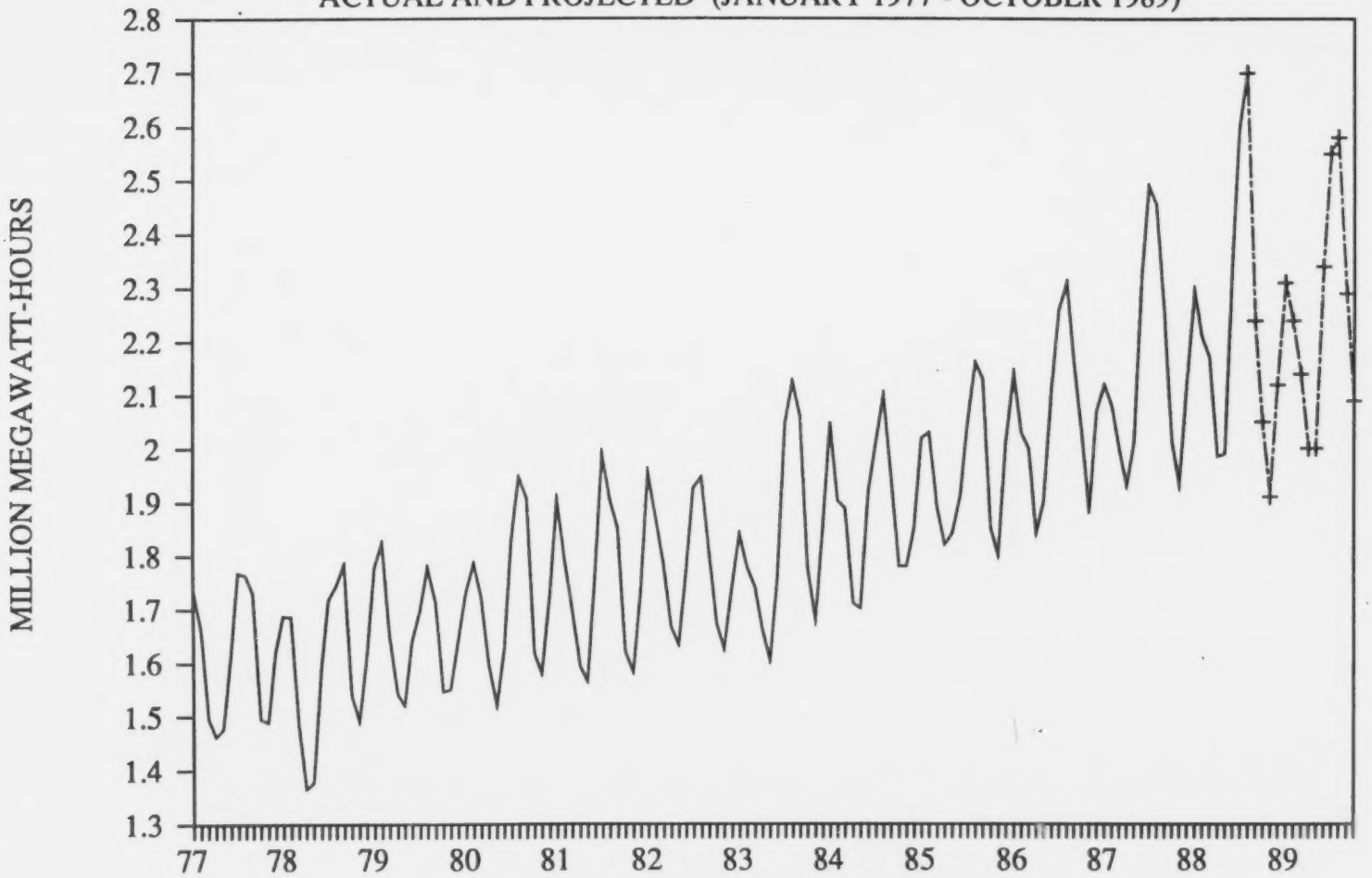
| Month | Lower 95% Confidence Limit | PUCO Forecast (1988-89) | Upper 95% Confidence Limit | Actual (1987-88) | Forecast Percentage Change |
|---|---|---|---|---|---|
| November | 1,820 | 1,910 | 2,000 | 1,931 | -1.1 |
| December | 2,020 | 2,120 | 2,220 | 2,115 | 0.2 |
| January | 2,160 | 2,310 | 2,460 | 2,294 | 0.7 |
| February | 2,140 | 2,240 | 2,340 | 2,209 | 1.4 |
| March | 2,040 | 2,140 | 2,240 | 2,171 | -1.4 |
| April | 1,910 | 2,000 | 2,090 | 1,985 | 0.8 |
| May | 1,880 | 2,000 | 2,120 | 1,991 | 0.5 |
| June | 2,210 | 2,340 | 2,470 | 2,340 | 0.0 |
| July | 2,410 | 2,550 | 2,690 | 2,594 | -1.7 |
| August | 2,430 | 2,580 | 2,730 | 2,702 | -4.5 |
| September | 2,160 | 2,290 | 2,430 | *[2] | *[2] |
| October | 2,050 | 2,090 | 2,130 | *[2] | *[2] |

1 Source: Ohio Electric Utility Institute and PUCO, Division of Forecasting and Siting (Sectoral totals include the eight major investor-owned electric utility companies, excluding OVEC).

2 * = Actual figures not available.

## FIG. A-2. MONTHLY OHIO COMMERCIAL ELECTRICITY CONSUMPTION

ACTUAL AND PROJECTED (JANUARY 1977 - OCTOBER 1989)




Source: Ohio Electric Utility Institute.

—— Actual + Projected

**Table A-11: Independent Forecast of Ohio Electricity Demand[1]**
**Industrial Sector**
**(1000 MWH)**

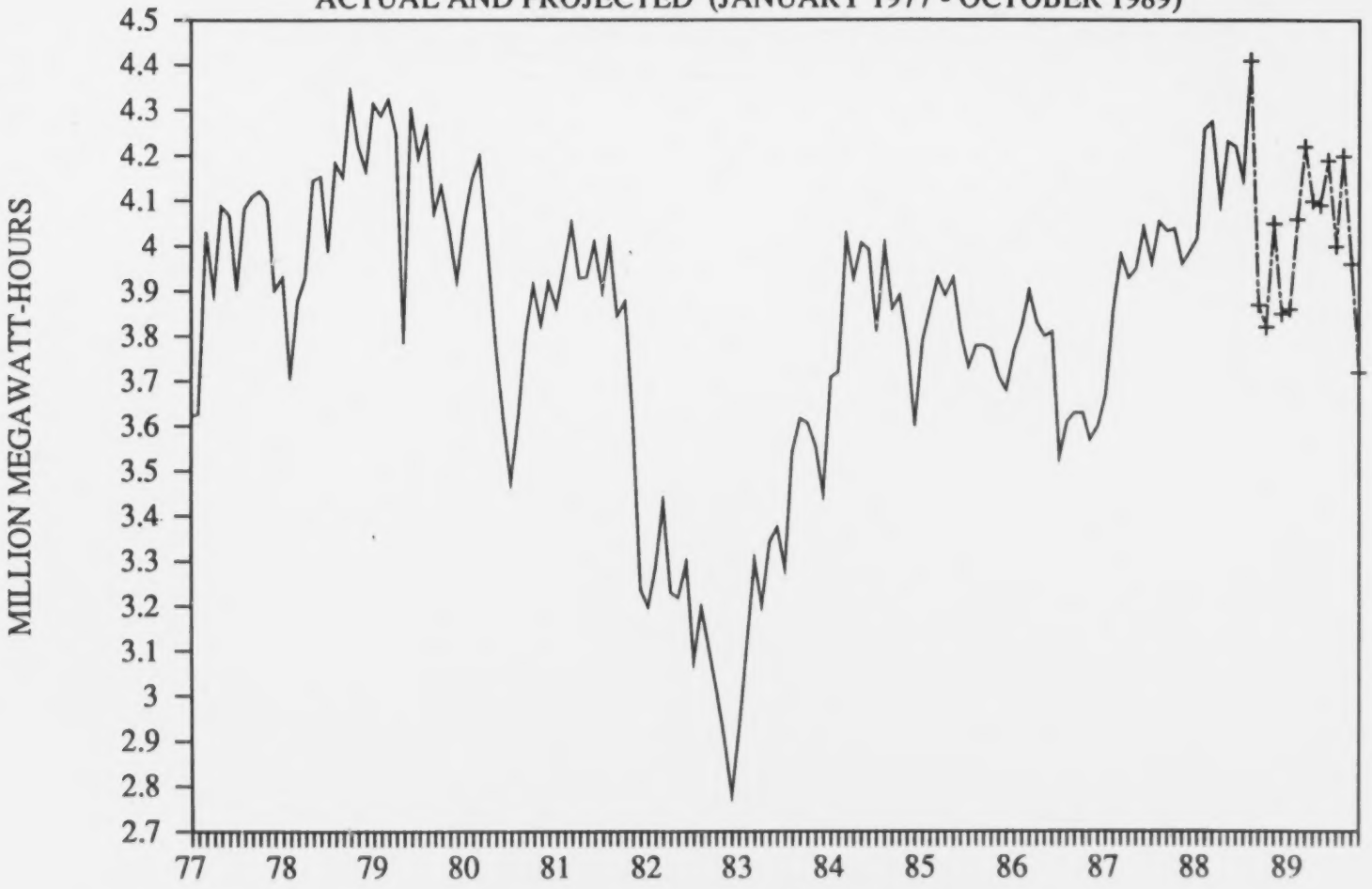
| Month | Lower 95% Confidence Limit | PUCO Forecast (1988-89) | Upper 95% Confidence Limit | Actual (1987-88) | Forecast Percentage Change |
|---|---|---|---|---|---|
| November | 3,810 | 4,050 | 4,290 | 3,960 | 2.3 |
| December | 3,600 | 3,850 | 4,100 | 3,988 | -3.5 |
| January | 3,610 | 3,860 | 4,110 | 4,017 | -3.9 |
| February | 3,800 | 4,060 | 4,320 | 4,259 | -4.7 |
| March | 3,950 | 4,220 | 4,490 | 4,274 | -1.3 |
| April | 3,830 | 4,100 | 4,370 | 4,092 | 0.2 |
| May | 3,820 | 4,090 | 4,360 | 4,231 | -3.3 |
| June | 3,900 | 4,190 | 4,480 | 4,221 | -0.7 |
| July | 3,720 | 4,000 | 4,280 | 4,146 | -3.5 |
| August | 3,910 | 4,200 | 4,490 | 4,408 | -4.7 |
| September | 3,750 | 3,960 | 4,150 | *[2] | *[2] |
| October | 3,420 | 3,720 | 4,020 | *[2] | *[2] |

1 Source: Ohio Electric Utility Institute and PUCO, Division of Forecasting and Siting (Sectoral totals include the eight major investor-owned electric utility companies, excluding OVEC).

2 * = Actual figures not available.

## FIG. A-3. MONTHLY OHIO INDUSTRIAL ELECTRICITY CONSUMPTION

ACTUAL AND PROJECTED (JANUARY 1977 - OCTOBER 1989)




Source: Ohio Electric Utility Institute.

—— Actual + Projected

**Table A-12: Independent Forecast of Ohio Electricity Demand[1]**
**All Sectors**
**(1000 MWH)**

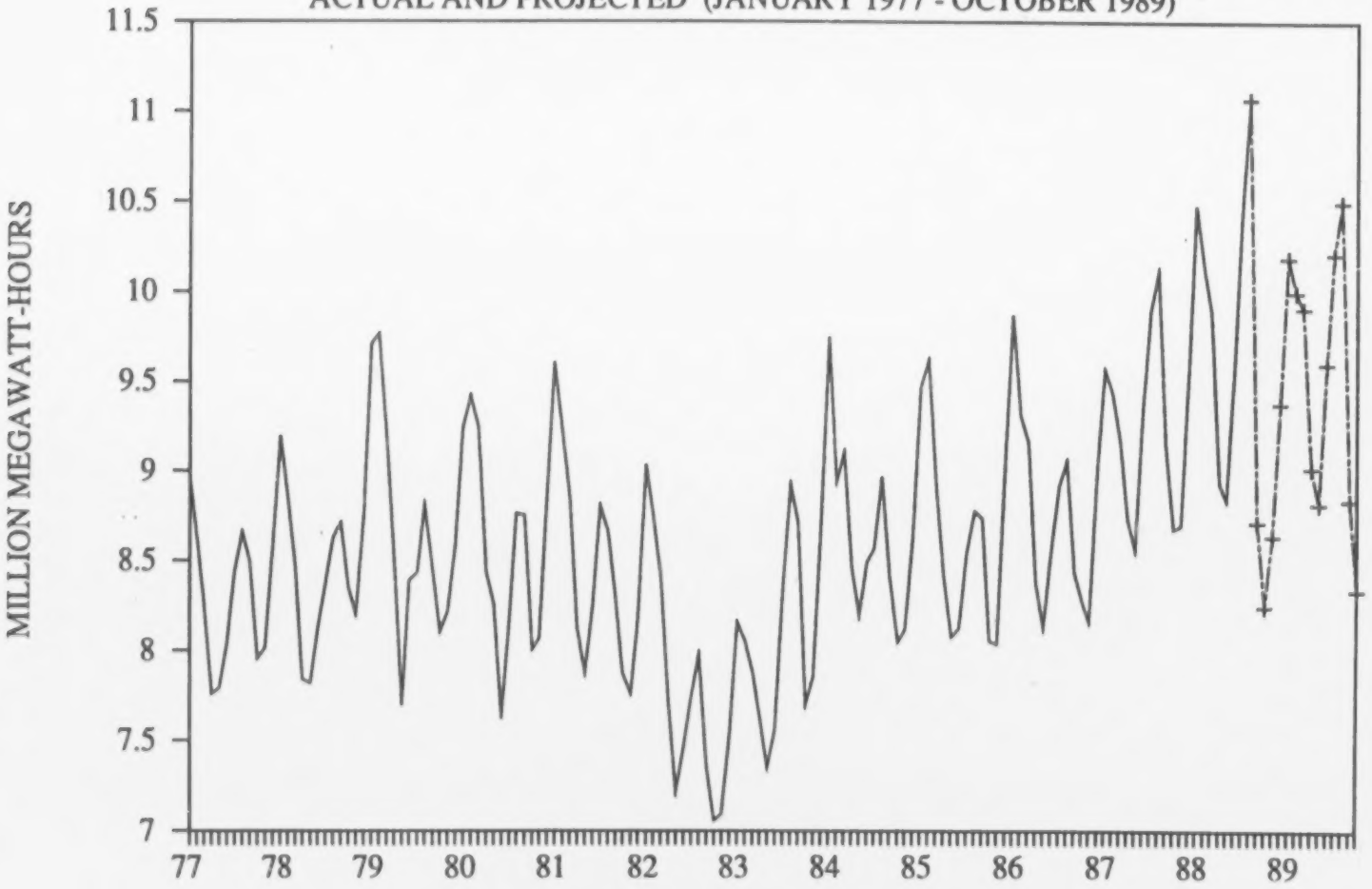
| Month | Lower 95% Confidence Limit | PUCO Forecast (1988-89) | Upper 95% Confidence Limit | Actual (1987-88) | Forecast Percentage Change |
|---|---|---|---|---|---|
| November | 8,210 | 8,640 | 9,080 | 8,700 | -0.7 |
| December | 8,910 | 9,380 | 9,850 | 9,550 | -1.8 |
| January | 9,640 | 10,190 | 10,740 | 10,481 | -2.8 |
| February | 9,600 | 10,000 | 10,700 | 10,134 | -1.3 |
| March | 9,460 | 9,910 | 10,370 | 9,892 | 0.2 |
| April | 8,590 | 9,020 | 9,450 | 8,938 | 0.9 |
| May | 8,520 | 8,820 | 9,120 | 8,840 | -0.2 |
| June | 9,140 | 9,600 | 10,060 | 9,554 | 0.5 |
| July | 9,940 | 10,210 | 10,890 | 10,451 | -2.3 |
| August | 10,260 | 10,500 | 11,240 | 11,066 | -5.1 |
| September | 8,340 | 8,840 | 9,330 | *[2] | *[2] |
| October | 7,890 | 8,340 | 8,780 | *[2] | *[2] |

1 Source: Ohio Electric Utility Institute and PUCO, Division of Forecasting and Siting (Sectoral totals include the eight major investor-owned electric utility companies, excluding OVEC).

2 * = Actual figures not available.

## FIG. A-4. MONTHLY OHIO TOTAL ELECTRICITY CONSUMPTION

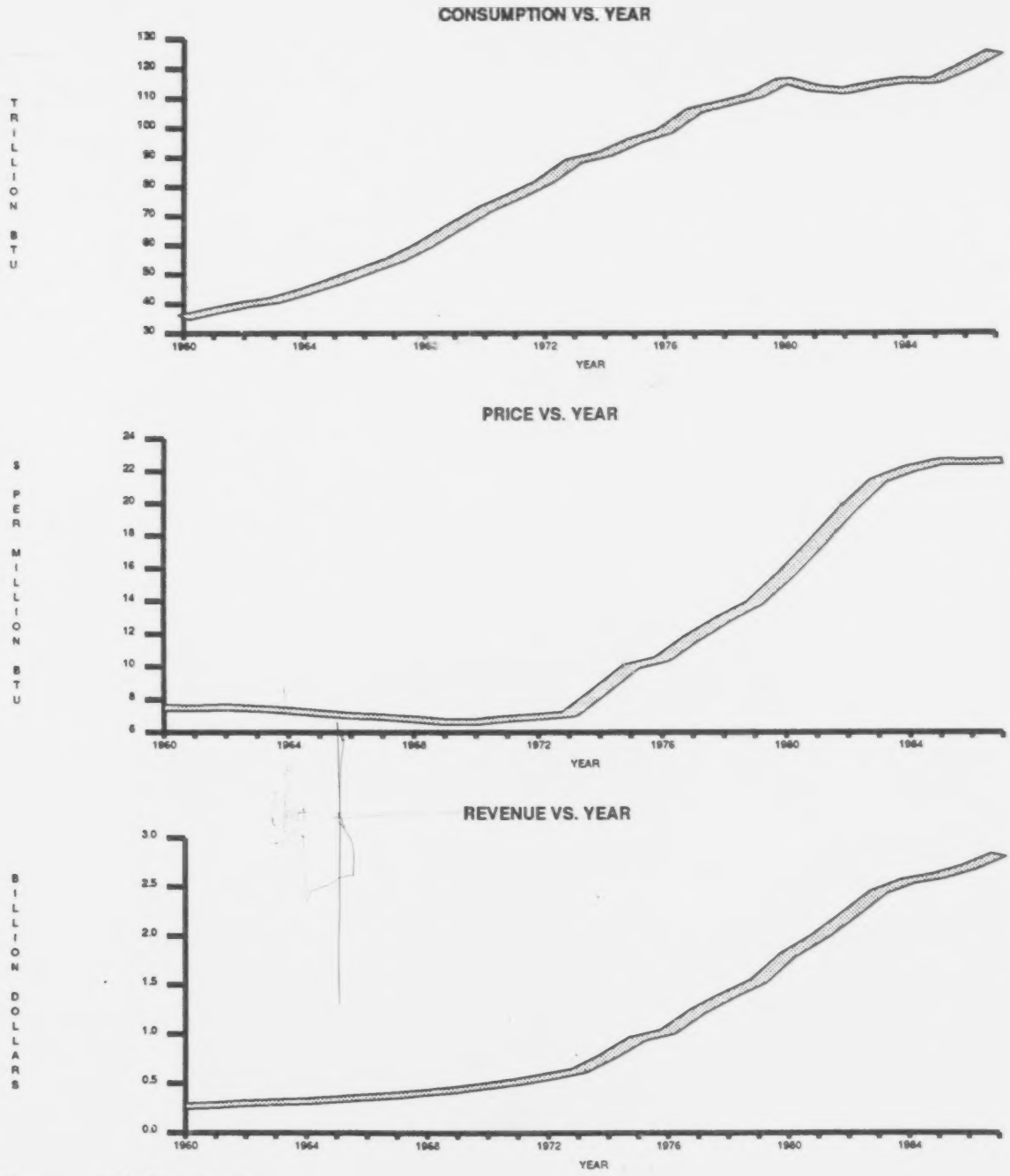
ACTUAL AND PROJECTED (JANUARY 1977 - OCTOBER 1989)




Source: Ohio Electric Utility Institute.

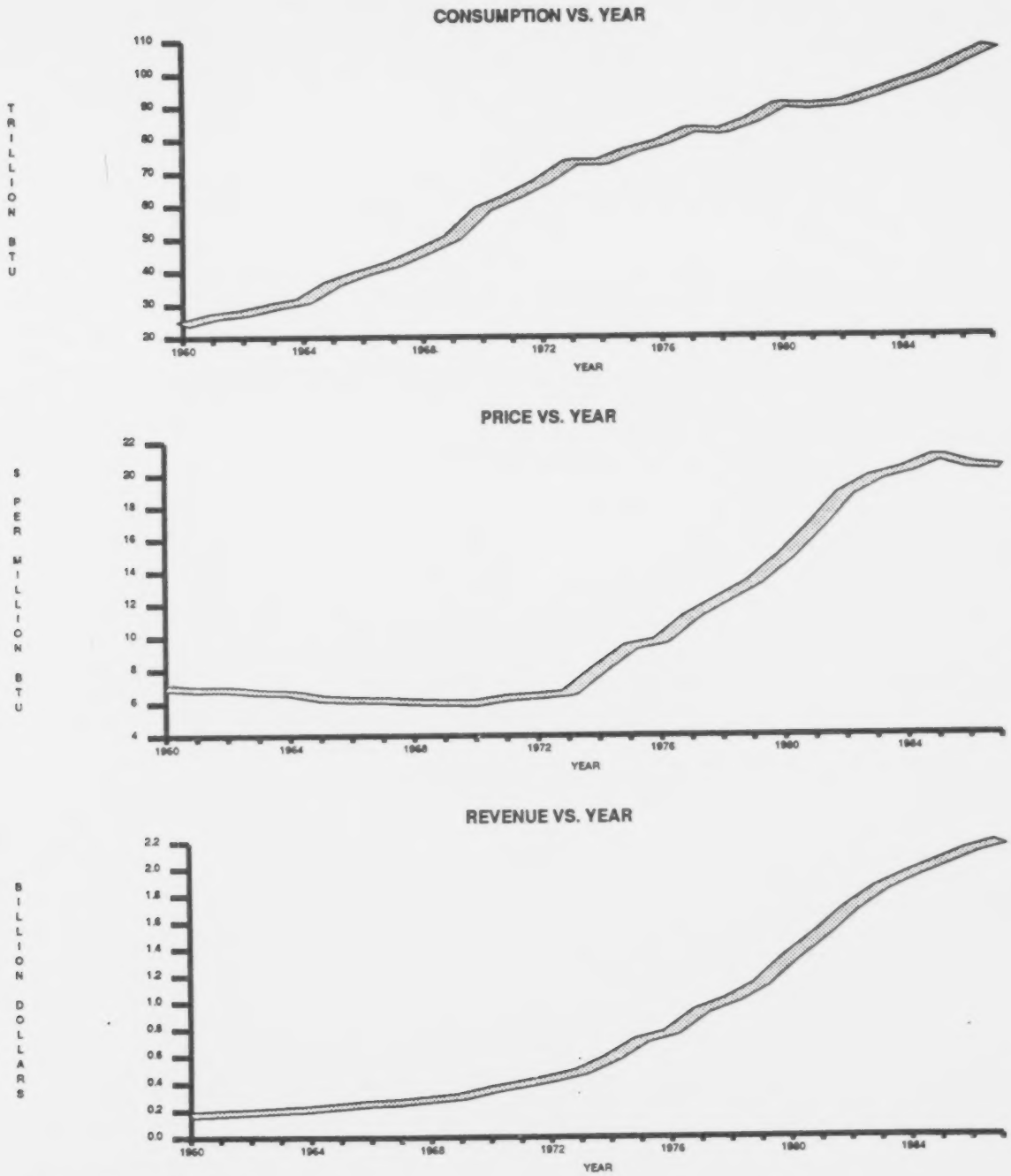
—— Actual + Projected

# FIG. A-5. ANNUAL OHIO ELECTRIC CONSUMPTION AND PRICES: RESIDENTIAL SECTORS (1960-1987)



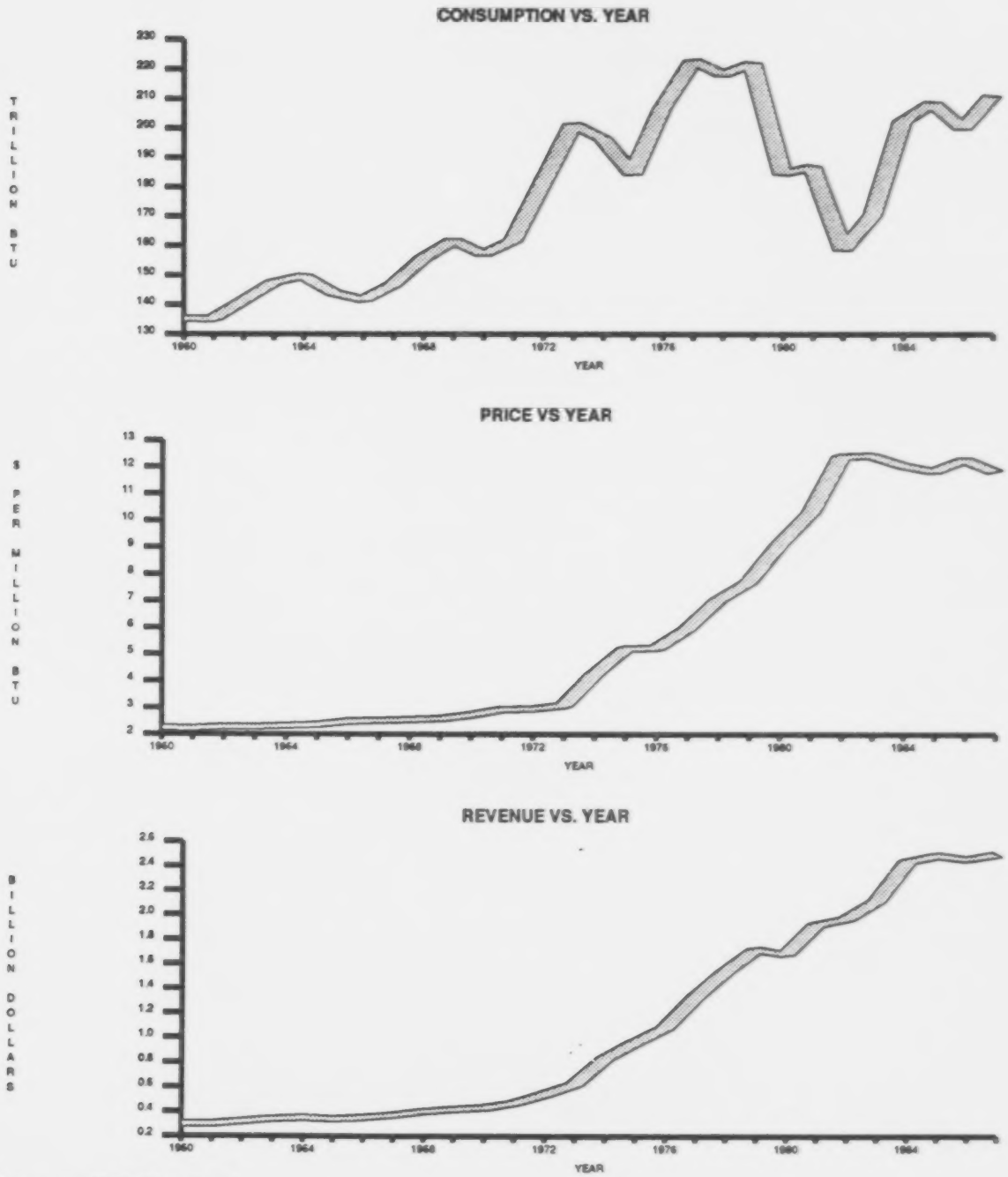

Source: EEI Yearbook.

# FIG. A-6. ANNUAL OHIO ELECTRIC CONSUMPTION AND PRICES: COMMERCIAL SECTORS (1960-1987)



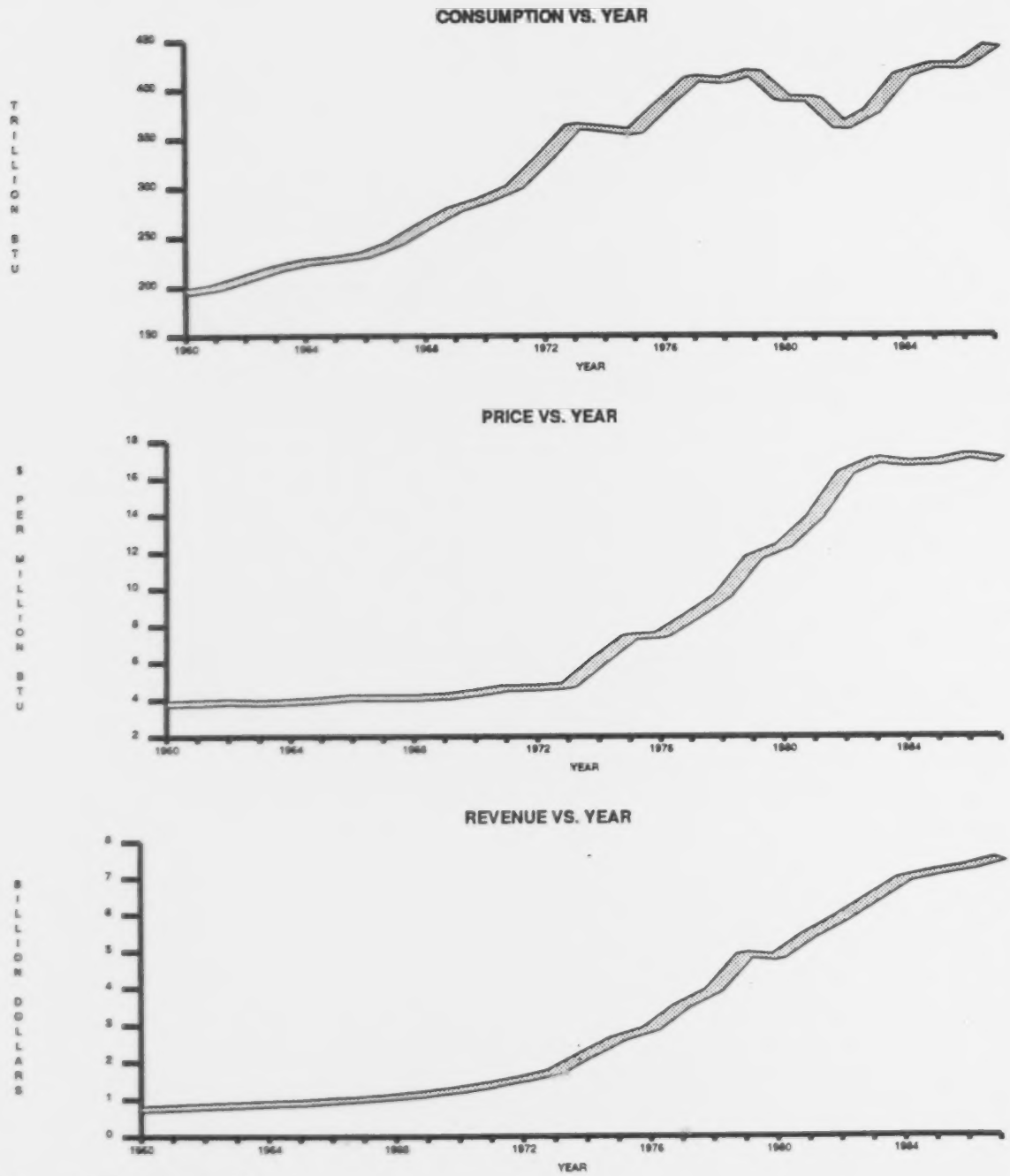

Source: EEI Yearbook.

# FIG. A-7. ANNUAL OHIO ELECTRIC CONSUMPTION AND PRICES: INDUSTRIAL SECTORS (1960-1987)




Source: EEI Yearbook.

# FIG. A-8. ANNUAL OHIO ELECTRIC CONSUMPTION AND PRICES: TOTAL OF ALL SECTORS (1960-1987)




Source: EEI Yearbook.

# APPENDIX B

**Table B-1: Cincinnati Gas and Electric**
**Forecast of Natural Gas Requirements[1]**
**(MMCF)**

| Month | Actual Demand (1987-1988) | Utility Forecast (1988-1989) | %Change Utility Forecast vs Actual | PUCO Forecast (1988-1989) | %Change PUCO Forecast vs Actual |
|---|---|---|---|---|---|
| November | 6,207 | 6,657 | 7.25 | 6,350 | 2.30 |
| December | 10,082 | 10,274 | 1.90 | 10,253 | 1.70 |
| January | 13,271 | 12,105 | -8.79 | 13,065 | -1.55 |
| February | 12,001 | 10,172 | -15.24 | 10,832 | -9.74 |
| March | 7,765 | 7,928 | 2.10 | 7,749 | -0.21 |
| April | 4,873 | 4,915 | 0.86 | 4,680 | -3.96 |
| May | 2,485 | 3,166 | 27.40 | 2,759 | 11.03 |
| June | 2,059 | 1,858 | -9.76 | 1,915 | -6.99 |
| July | 1,875 | 1,821 | -2.88 | 1,764 | -5.92 |
| August | 2,326 | 1,736 | -25.37 | 2,046 | -12.04 |
| September | *[2] | 2,075 | *[2] | 2,068 | *[2] |
| October | *[2] | 8,782 | *[2] | 5,998 | *[2] |

1 Source: PUCO Form SG-2 and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

**Table B-2: Columbia Gas of Ohio**
**Forecast of Natural Gas Requirements[1]**
**(MMCF)**

| Month | Actual Demand (1987-1988) | Utility Forecast (1988-1989) | %Change Utility Forecast vs Actual | PUCO Forecast (1988-1989) | %Change PUCO Forecast vs Actual |
|---|---|---|---|---|---|
| November | 16,808 | 18,473 | 9.91 | 17,966 | 6.89 |
| December | 25,699 | 27,838 | 8.32 | 26,589 | 3.46 |
| January | 34,023 | 33,158 | -2.54 | 33,850 | -0.51 |
| February | 31,749 | 29,118 | -8.29 | 30,984 | -2.41 |
| March | 24,012 | 24,058 | 0.19 | 23,923 | -0.37 |
| April | 13,532 | 14,724 | 8.81 | 13,958 | 3.15 |
| May | 6,633 | 7,063 | 6.48 | 7,134 | 7.55 |
| June | 4,964 | 3,595 | -27.58 | 4,248 | -14.42 |
| July | 4,017 | 3,896 | -3.01 | 3,904 | -2.81 |
| August | 3,934 | 4,176 | 6.15 | 3,833 | -2.57 |
| September | *[2] | 4,087 | *[2] | 5,764 | *[2] |
| October | *[2] | 10,333 | *[2] | 13,559 | *[2] |

1 Source: PUCO Form SG-2 and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

**Table B-3: Dayton Power and Light**
**Forecast of Natural Gas Requirements[1]**
**(MMCF)**

| Month | Actual Demand (1987-1988) | Utility Forecast (1988-1989) | %Change Utility Forecast vs Actual | PUCO Forecast (1988-1989) | %Change PUCO Forecast vs Actual |
|---|---|---|---|---|---|
| November | 4,363 | 4,500 | 3.14 | 4,541 | 4.08 |
| December | 6,894 | 6,425 | -6.80 | 7,109 | 3.12 |
| January | 9,055 | 8,580 | -5.25 | 8,774 | -3.10 |
| February | 8,158 | 8,355 | 2.41 | 8,091 | -0.82 |
| March | 5,977 | 5,794 | -3.06 | 5,794 | -3.06 |
| April | 3,387 | 4,798 | 41.66 | 3,742 | 10.48 |
| May | 1,844 | 2,435 | 32.05 | 1,879 | 1.90 |
| June | 1,335 | 1,202 | -9.96 | 1,213 | -9.14 |
| July | 1,171 | 1,166 | -0.43 | 1,149 | -1.88 |
| August | 1,348 | 1,226 | -9.05 | 1,254 | -6.97 |
| September | *[2] | 931 | *[2] | 1,243 | *[2] |
| October | *[2] | 1,971 | *[2] | 2,685 | *[2] |

1 Source: PUCO Form SG-2 and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

**Table B-4: East Ohio Gas**
**Forecast of Natural Gas Requirements[1]**
**(MMCF)**

| Month | Actual Demand (1987-1988) | Utility Forecast (1988-1989) | %Change Utility Forecast vs Actual | PUCO Forecast (1988-1989) | %Change PUCO Forecast vs Actual |
|---|---|---|---|---|---|
| November | 21,493 | 24,274 | 12.94 | 23,405 | 8.90 |
| December | 32,176 | 31,636 | -1.68 | 32,572 | 1.23 |
| January | 38,952 | 37,637 | -3.38 | 37,955 | -2.56 |
| February | 35,549 | 32,269 | -9.23 | 32,917 | -7.40 |
| March | 26,889 | 26,534 | -1.32 | 26,327 | -2.09 |
| April | 17,815 | 16,922 | -5.01 | 17,440 | -2.10 |
| May | 18,020 | 19,763 | 9.67 | 18,278 | 1.43 |
| June | 14,685 | 15,226 | 3.68 | 14,702 | 0.12 |
| July | 13,057 | 14,147 | 8.35 | 13,672 | 4.71 |
| August | 13,528 | 13,432 | -0.71 | 13,405 | -0.91 |
| September | *[2] | 15,323 | *[2] | 14,698 | *[2] |
| October | *[2] | 22,745 | *[2] | 22,731 | *[2] |

1 Source: PUCO Form SG-2 and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

**Table B-5: Independent Forecast of Ohio Natural Gas End User Requirements: Residential Sector[1] (MMCF)**

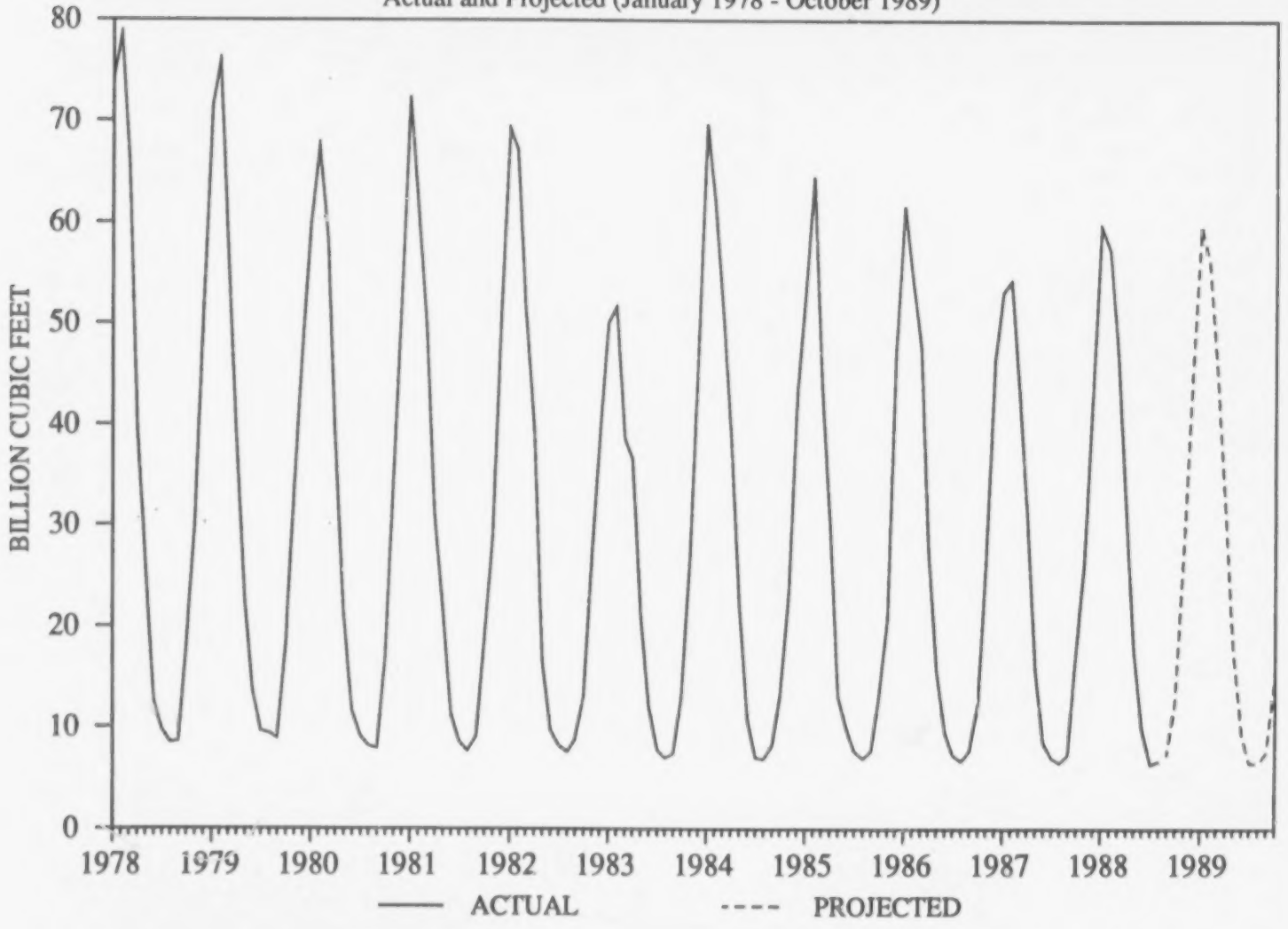
| Month | Lower 95% Confidence Limit | PUCO Forecast (1988-89) | Upper 95% Confidence Limit | Actual (1987-88) | Forecast Percentage Change |
|---|---|---|---|---|---|
| November | 22,078 | 27,598 | 33,118 | 26,364 | 4.7 |
| December | 33,507 | 44,676 | 55,845 | 44,140 | 1.2 |
| January | 44,760 | 59,680 | 74,600 | 59,683 | 0.0 |
| February | 42,246 | 56,328 | 70,410 | 57,405 | -1.9 |
| March | 36,875 | 46,094 | 55,313 | 47,174 | -2.3 |
| April | 25,092 | 31,365 | 37,638 | 31,039 | 1.1 |
| May | 14,143 | 17,679 | 21,215 | 17,756 | -0.4 |
| June | 7,978 | 9,386 | 10,794 | 9,984 | -6.0 |
| July | 5,578 | 6,562 | 7,546 | 6,403 | 2.5 |
| August | 5,506 | 6,478 | 7,450 | 6,690 | -3.2 |
| September | 6,046 | 7,557 | 9,068 | *[2] | *[2] |
| October | 12,095 | 15,119 | 18,143 | *[2] | *[2] |

1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting and Siting.

2 * = Actual figures not available.

## FIG. B-1. MONTHLY OHIO RESIDENTIAL NATURAL GAS CONSUMPTION

Actual and Projected (January 1978 - October 1989)




SOURCE: MONTHLY GAS REPORT.

**Table B-6: Independent Forecast of Ohio Natural Gas End User Requirements: Commercial Sector[1] (MMCF)**

| Month | Lower 95% Confidence Limit | PUCO Forecast[2] (1988-89) | Upper 95% Confidence Limit | Actual[2] (1987-88) | Forecast Percentage Change |
|---|---|---|---|---|---|
| November | 8,492 | 10,615 | 12,738 | 10,182 | 4.3 |
| December | 13,197 | 17,596 | 21,995 | 17,253 | 2.0 |
| January | 17,418 | 23,224 | 29,030 | 24,036 | -3.4 |
| February | 16,690 | 22,253 | 27,816 | 23,271 | -4.4 |
| March | 14,869 | 18,586 | 22,303 | 19,810 | -6.2 |
| April | 9,412 | 11,765 | 14,118 | 11,152 | 5.5 |
| May | 5,199 | 6,499 | 7,799 | 6,648 | -2.2 |
| June | 2,860 | 3,365 | 3,870 | 3,260 | 3.2 |
| July | 2,474 | 2,910 | 3,347 | 2,958 | -1.6 |
| August | 2,253 | 2,651 | 3,049 | 2,646 | 0.2 |
| September | 2,466 | 3,082 | 3,698 | *[3] | *[3] |
| October | 4,552 | 5,690 | 6,828 | *[3] | *[3] |

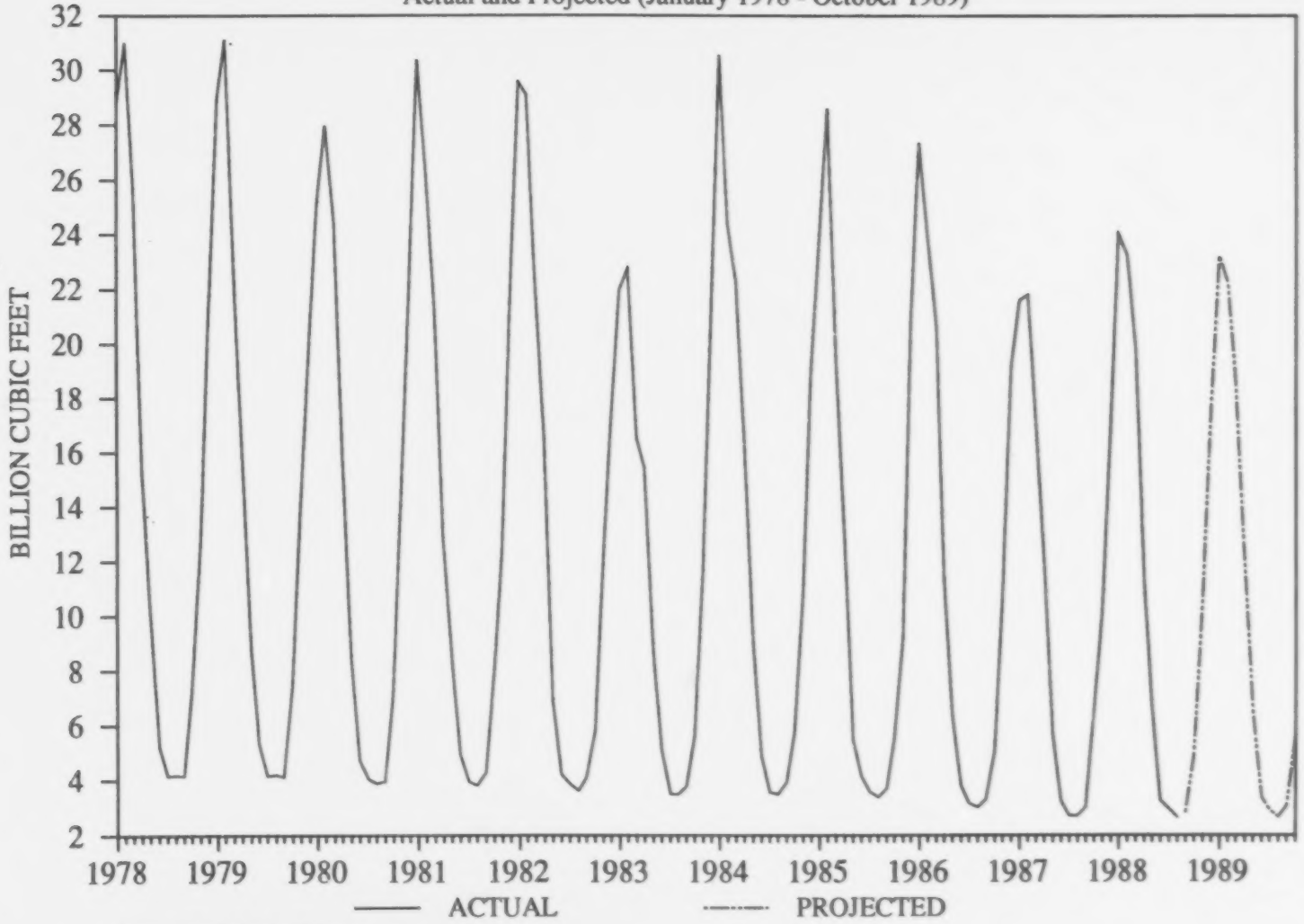
1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting and Siting.

2 Forecast and Actual data do not include non-tariff or transportation sales which in 1987 accounted for 13% of the commercial sector market in Ohio.

3 * = Actual figures not available.

## FIG. B-2. MONTHLY OHIO COMMERCIAL NATURAL GAS CONSUMPTION

Actual and Projected (January 1978 - October 1989)




**Souce: Monthly Gas Report.**

**Note: Forecast and Actual data do not include non-tariff or transportation sales which in 1987 accounted for 13% of the commercial sector market in Ohio.**

**Table B-7: Independent Forecast of Ohio Natural Gas End User Requirements: Industrial Sector[1] (MMCF)**

| Month | Lower 95% Confidence Limit | PUCO Forecast[2] (1988-89) | Upper 95% Confidence Limit | Actual[2] (1987-88) | Forecast Percentage Change |
|---|---|---|---|---|---|
| November | 3,163 | 4,217 | 5,271 | 4,308 | -2.1 |
| December | 3,761 | 5,373 | 6,985 | 5,415 | -0.8 |
| January | 4,474 | 6,392 | 8,310 | 6,634 | -3.6 |
| February | 4,517 | 6,453 | 8,389 | 7,468 | -13.6 |
| March | 4,187 | 5,583 | 6,979 | 5,634 | -0.9 |
| April | 2,756 | 3,674 | 4,593 | 3,758 | -2.2 |
| May | 2,173 | 2,897 | 3,621 | 3,145 | -7.9 |
| June | 1,999 | 2,499 | 2,999 | 2,788 | -10.4 |
| July | 1,697 | 2,121 | 2,545 | 2,384 | -11.0 |
| August | 1,936 | 2,420 | 2,904 | 2,762 | -12.4 |
| September | 2,200 | 2,933 | 3,666 | *[3] | *[3] |
| October | 2,658 | 3,544 | 4,430 | *[3] | *[3] |

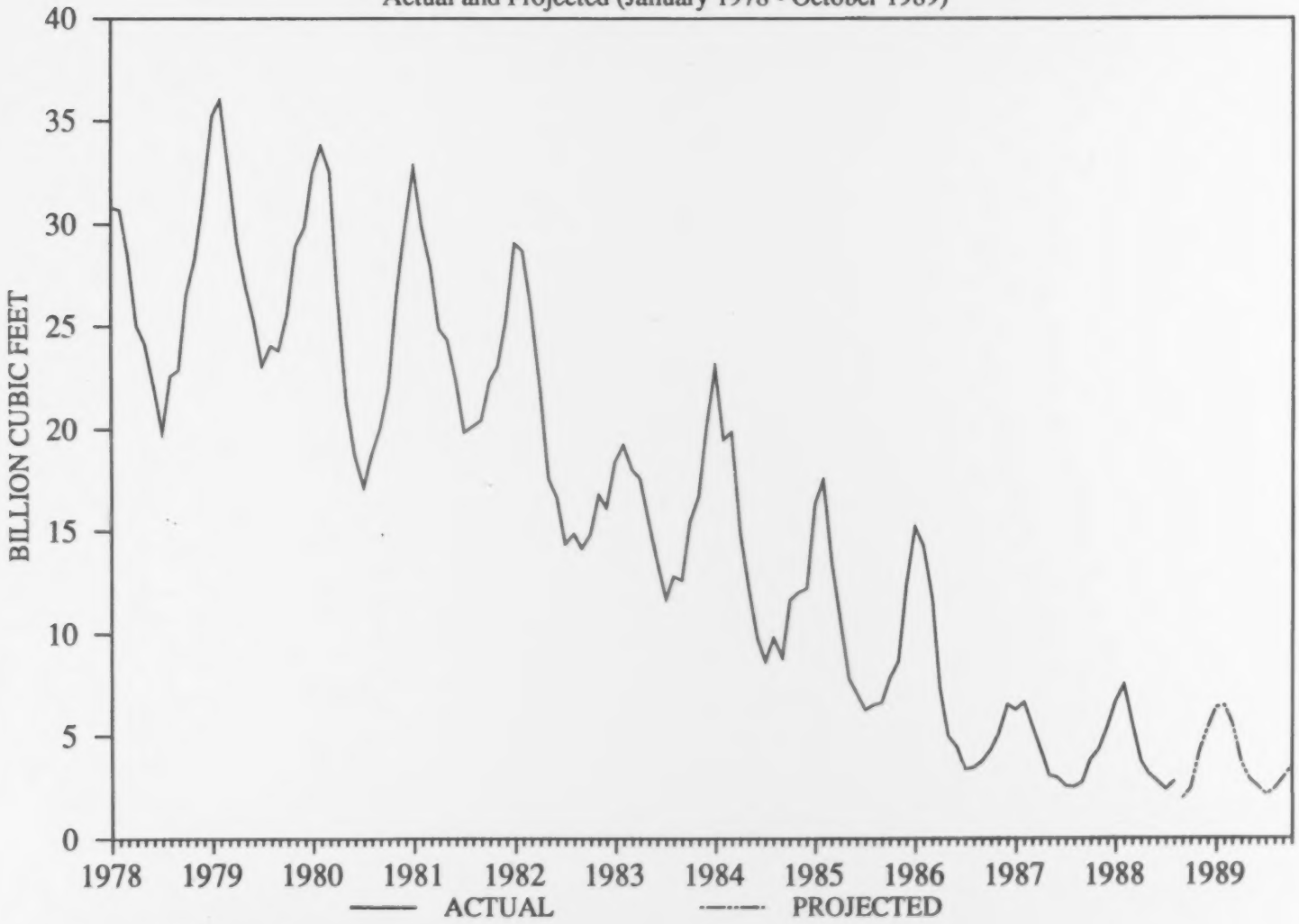
1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting and Siting.

2 Forecast and Actual data do not include non-tariff or transportation gas consumption which in 1987 accounted for 77% of the industrial sector market for the State.

3 * = Actual figures not available.

## FIG. B-3. MONTHLY OHIO INDUSTRIAL NATURAL GAS CONSUMPTION

Actual and Projected (January 1978 - October 1989)




**Source: Monthly Gas Report.**

**Note: Forecast and Actual data do not include non-tariff or transportation gas consumption which in 1987 accounted for 77% of the industrial sector market for the State.**

**Table B-8: Independent Forecast of Ohio Natural Gas End User Requirements: All Sectors[1] (MMCF)**

| Month | Lower 95% Confidence Limit | PUCO Forecast[2] (1988-89) | Upper 95% Confidence Limit | Actual (1987-88) | Forecast Percentage Change |
|---|---|---|---|---|---|
| November | 43,178 | 53,973 | 64,768 | 51,019 | 5.8 |
| December | 57,056 | 76,074 | 95,093 | 78,025 | -2.5 |
| January | 71,574 | 95,432 | 119,290 | 99,693 | -4.3 |
| February | 63,028 | 84,037 | 105,046 | 91,481 | -8.1 |
| March | 53,189 | 66,486 | 79,783 | 67,572 | -1.6 |
| April | 33,833 | 42,291 | 50,749 | 41,313 | 2.4 |
| May | 23,634 | 29,543 | 35,452 | 29,943 | -1.3 |
| June | 19,580 | 23,035 | 26,490 | 23,986 | -4.0 |
| July | 18,323 | 21,556 | 24,789 | 21,028 | 2.5 |
| August | 18,464 | 21,722 | 24,980 | 22,145 | -1.9 |
| September | 19,524 | 24,405 | 29,286 | *[3] | *[3] |
| October | 36,717 | 45,896 | 55,075 | *[3] | *[3] |

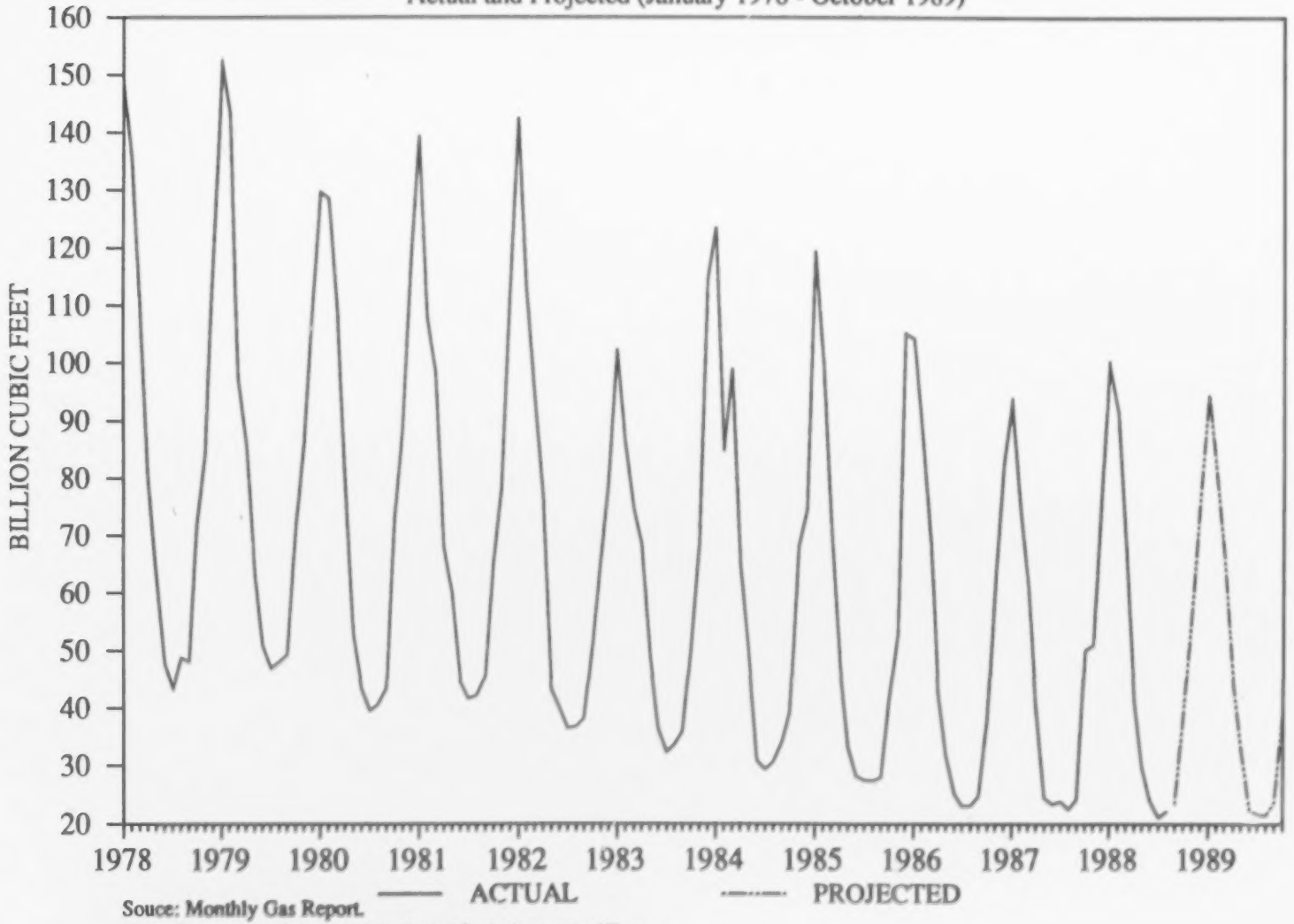
1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting and Siting.

2 Forecast and Actual data do not include non-tariff or transportation sales which in 1987 accounted for additional 17,852mmcf in the commercial sector and 170,211mmcf in the industrial sector for the State.

3 * = Actual figures not available.

## FIG. B4. MONTHLY OHIO TOTAL NATURAL GAS CONSUMPTION

Actual and Projected (January 1978 - October 1989)




Souce: Monthly Gas Report.

**Note: Forecast and Actual data do not include non-tariff or transportation sales which in 1987 accounted for additional 17,852mmcf in the commercial sector and 170,211mmcf in the industrial sector for the State.**

## TABLE B-9. PROJECTED SUPPLY AND DEMAND FOR EIGHT MAJOR OHIO NATURAL GAS UTILITIES

COMPANY: CINN. GAS & ELEC.

PROJECTED SUPPLY AND DEMAND (IN MMCF)

| MONTH/YEAR | 9/88 | 10/88 | 11/88 | 12/88 | 1/89 | 2/89 | 3/89 | 4/89 | 5/89 | 6/89 | 7/89 | 8/89 | SUMMER | WINTER | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUPPLY | 2381 | 4265 | 7123 | 10647 | 12345 | 10741 | 8422 | 5088 | 3083 | 2310 | 2205 | 2218 | 21462 | 49278 | 70740 |
| DEMAND | 2381 | 4265 | 7123 | 10647 | 12345 | 10741 | 8422 | 5088 | 3083 | 2310 | 2205 | 2218 | 21462 | 49278 | 70740 |
| DEFICIENCY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % DEFICIENCY | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

COMPANY: COLUMBIA GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

| MONTH/YEAR | 9/88 | 10/88 | 11/88 | 12/88 | 1/89 | 2/89 | 3/89 | 4/89 | 5/89 | 6/89 | 7/89 | 8/89 | SUMMER | WINTER | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUPPLY | 4857 | 10396 | 18473 | 27838 | 33158 | 29118 | 24058 | 14724 | 7063 | 3595 | 3896 | 4176 | 48787 | 132645 | 181352 |
| DEMAND | 4857 | 10396 | 18473 | 27838 | 33158 | 29118 | 24058 | 14724 | 7063 | 3595 | 3896 | 4176 | 48787 | 132645 | 181352 |
| DEFICIENCY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % DEFICIENCY | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |



COMPANY: DAYTON POWER & LIGHT

PROJECTED SUPPLY AND DEMAND (IN MMCF)

| MONTH/YEAR | 9/88 | 10/88 | 11/88 | 12/88 | 1/89 | 2/89 | 3/89 | 4/89 | 5/89 | 6/89 | 7/89 | 8/89 | SUMMER | WINTER | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUPPLY | 1201 | 2377 | 4224 | 6031 | 8588 | 8354 | 5793 | 4799 | 2435 | 1202 | 1167 | 1226 | 14407 | 32982 | 47389 |
| DEMAND | 1201 | 2377 | 4224 | 6031 | 8588 | 8354 | 5793 | 4799 | 2435 | 1202 | 1167 | 1226 | 14407 | 32982 | 47389 |
| DEFICIENCY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % DEFICIENCY | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

COMPANY: EAST OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

| MONTH/YEAR | 9/88 | 10/88 | 11/88 | 12/88 | 1/89 | 2/89 | 3/89 | 4/89 | 5/89 | 6/89 | 7/89 | 8/89 | SUMMER | WINTER | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUPPLY | 15433 | 21474 | 25449 | 31813 | 36223 | 31308 | 26163 | 20867 | 19386 | 15044 | 13993 | 13248 | 118637 | 150148 | 268785 |
| DEMAND | 15433 | 21474 | 25449 | 31813 | 36223 | 31308 | 26163 | 20867 | 19386 | 15044 | 13993 | 13248 | 118637 | 150148 | 268785 |
| DEFICIENCY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % DEFICIENCY | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

## TABLE B-9. PROJECTED SUPPLY AND DEMAND FOR EIGHT MAJOR OHIO NATURAL GAS UTILITIES

COMPANY: NATIONAL GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

| MONTH/YEAR | 9/88 | 10/88 | 11/88 | 12/88 | 1/89 | 2/89 | 3/89 | 4/89 | 5/89 | 6/89 | 7/89 | 8/89 | SUMMER | WINTER | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUPPLY | 289 | 126 | 237 | 421 | 539 | 519 | 429 | 283 | 165 | 286 | 290 | 291 | 1738 | 2145 | 3875 |
| DEMAND | 289 | 126 | 237 | 421 | 539 | 519 | 429 | 283 | 165 | 286 | 290 | 291 | 1738 | 2145 | 3875 |
| DEFICIENCY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % DEFICIENCY | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

COMPANY: OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

| MONTH/YEAR | 9/88 | 10/88 | 11/88 | 12/88 | 1/89 | 2/89 | 3/89 | 4/89 | 5/89 | 6/89 | 7/89 | 8/89 | SUMMER | WINTER | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUPPLY | 339 | 661 | 880 | 1201 | 1302 | 1118 | 980 | 624 | 356 | 267 | 178 | 338 | 2763 | 5481 | 8244 |
| DEMAND | 339 | 661 | 880 | 1201 | 1302 | 1118 | 980 | 624 | 356 | 267 | 178 | 338 | 2763 | 5481 | 8244 |
| DEFICIENCY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % DEFICIENCY | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

COMPANY: RIVER GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

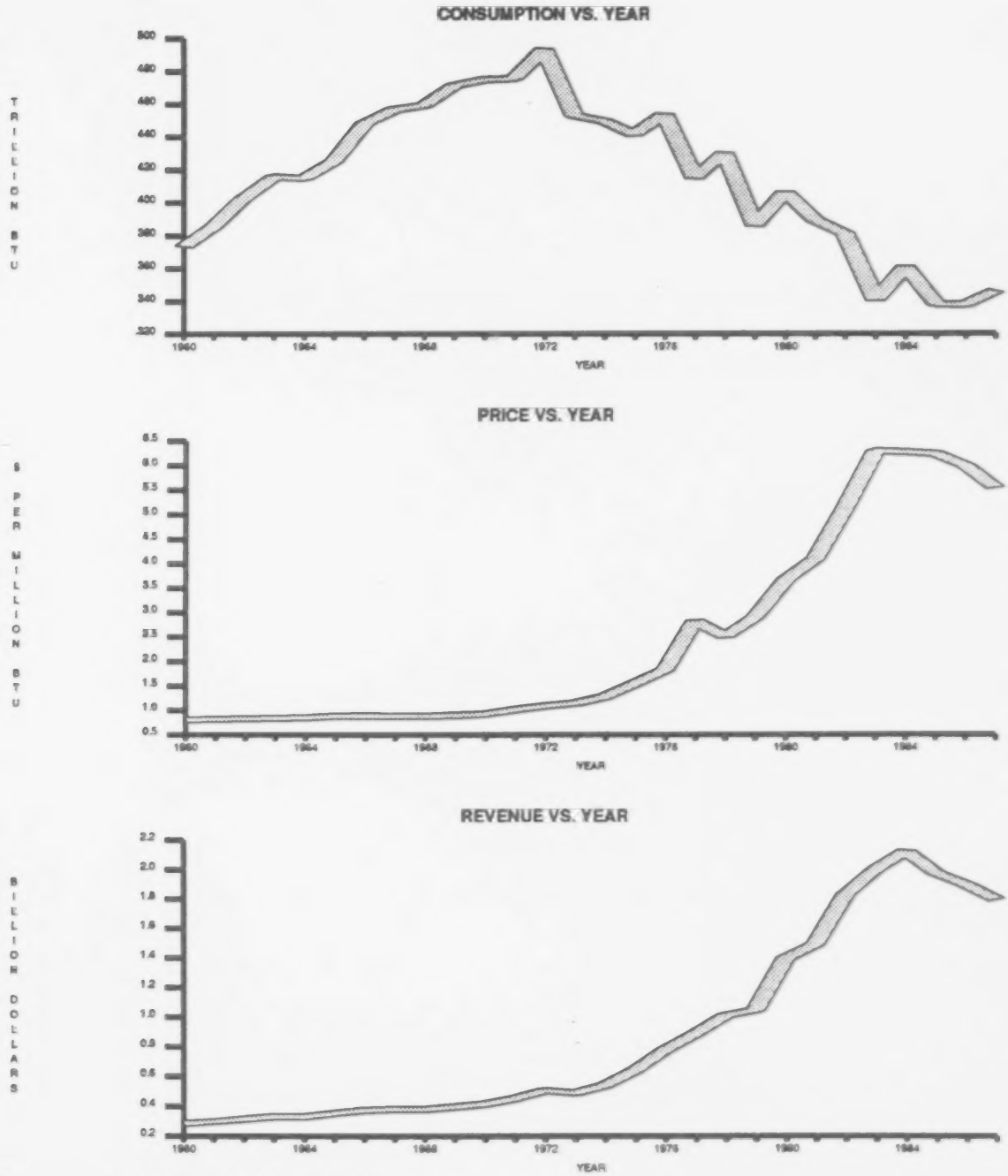
| MONTH/YEAR | 9/88 | 10/88 | 11/88 | 12/88 | 1/89 | 2/89 | 3/89 | 4/89 | 5/89 | 6/89 | 7/89 | 8/89 | SUMMER | WINTER | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUPPLY | 81 | 148 | 239 | 396 | 469 | 431 | 330 | 208 | 198 | 155 | 155 | 149 | 1086 | 1865 | 2951 |
| DEMAND | 81 | 148 | 239 | 396 | 469 | 431 | 330 | 208 | 198 | 155 | 155 | 149 | 1086 | 1865 | 2951 |
| DEFICIENCY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % DEFICIENCY | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

COMPANY: WEST OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

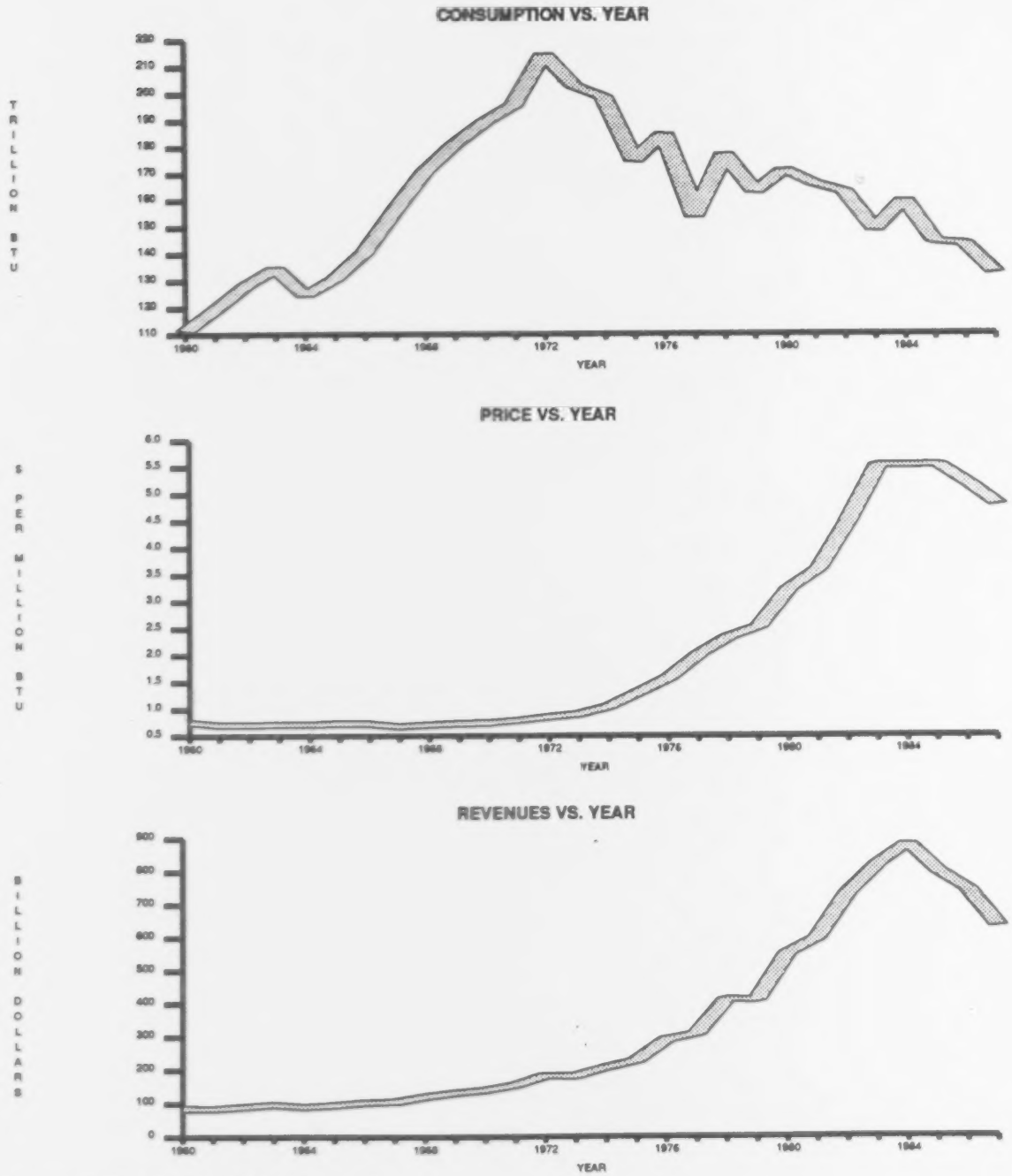
| MONTH/YEAR | 9/88 | 10/88 | 11/88 | 12/88 | 1/89 | 2/89 | 3/89 | 4/89 | 5/89 | 6/89 | 7/89 | 8/89 | SUMMER | WINTER | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUPPLY | 257 | 552 | 954 | 1482 | 1853 | 1276 | 1154 | 545 | 294 | 131 | 145 | 177 | 2101 | 6719 | 8820 |
| DEMAND | 257 | 552 | 954 | 1482 | 1853 | 1276 | 1154 | 545 | 294 | 131 | 145 | 177 | 2101 | 6719 | 8820 |
| DEFICIENCY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % DEFICIENCY | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

# FIG. B-5. ANNUAL OHIO NATURAL GAS CONSUMPTION, PRICES, AND REVENUES: RESIDENTIAL SECTORS 1960-1987



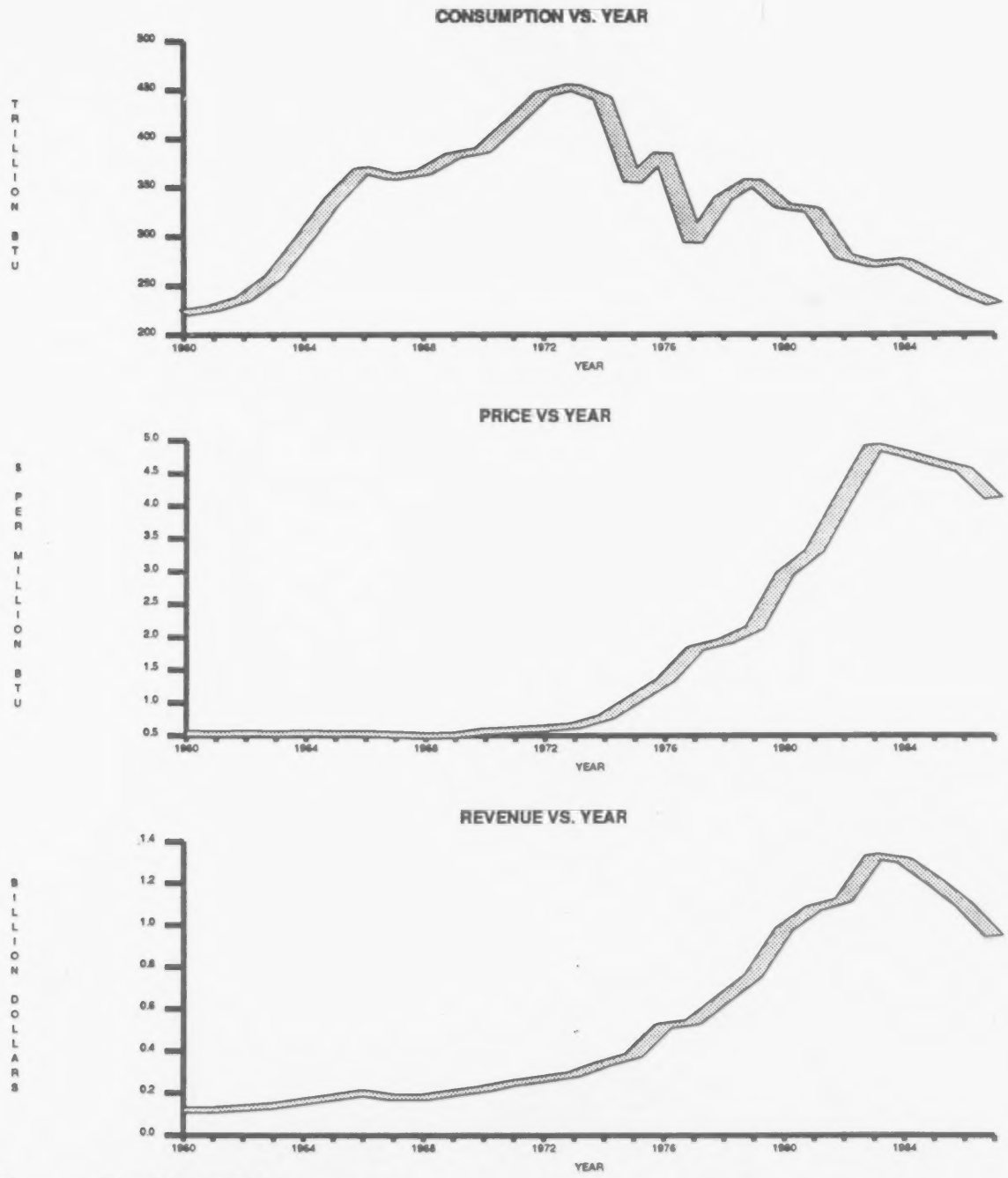

Source: The Natural Gas Annual.

# FIG. B-6. ANNUAL OHIO NATURAL GAS CONSUMPTION, PRICES, AND REVENUES: COMMERCIAL SECTORS 1960-1987



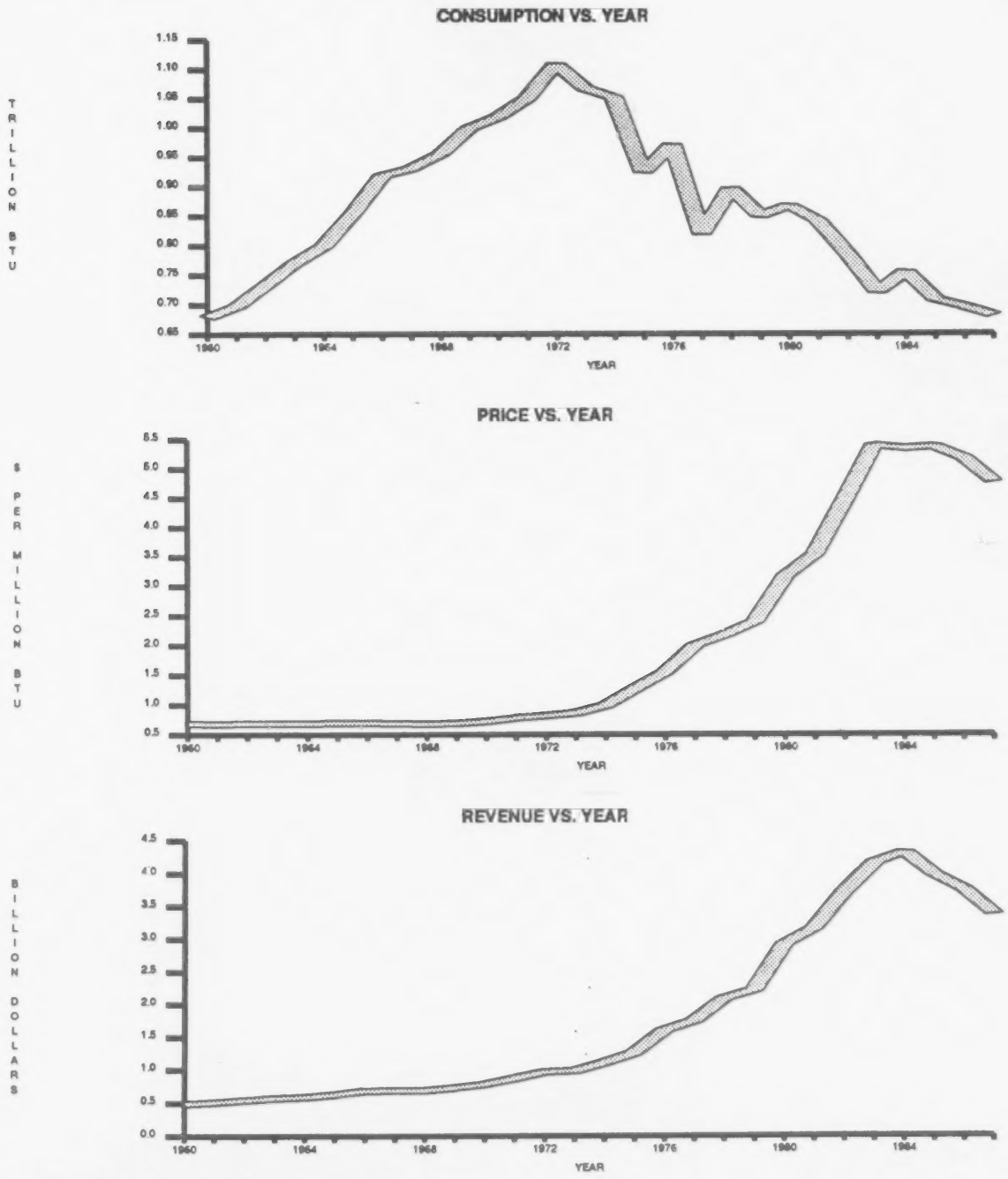

Source: The Natural Gas Annual.

# FIG. B-7. ANNUAL OHIO NATURAL GAS CONSUMPTION, PRICES, AND REVENUES: INDUSTRIAL SECTORS 1960-1987



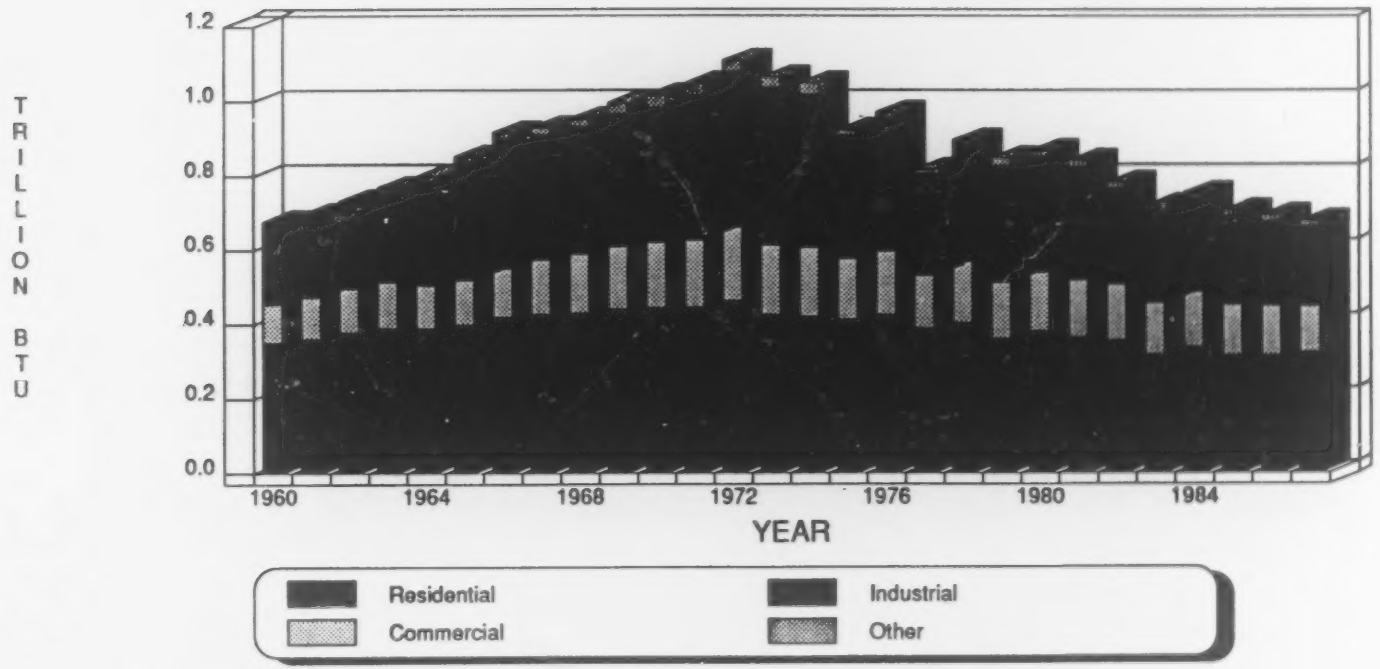

Source: The Natural Gas Annual.

# FIG. B-8. ANNUAL OHIO NATURAL GAS CONSUMPTION, PRICES, AND REVENUES: TOTAL OF ALL SECTORS 1960-1987




Source: The Natural Gas Annual.

# FIG. B-9. ANNUAL OHIO NATURAL GAS CONSUMPTION BY SECTOR, 1960-1987




Source: The Natural Gas Annual.

## Public Utilities Commission of Ohio

### COMMISSIONERS

Thomas V. Chema, Chairman
Ashley C. Brown, Commissioner
Alan R. Schriber, PhD., Commissioner
Gloria L. Gaylord, Commissioner
Lenworth Smith Jr., Commissioner

### SERVING YOU

*is at the heart of it all*

An Equal Opportunity Employer